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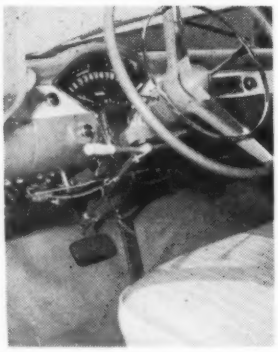

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THE JOURNAL OF THE ASSOCIATION FOR PHYSICAL AND MENTAL REHABILITATION

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SYMPOSIUM

NEW HORIZONS IN THE DEVELOPMENT OF A PROGRAM FOR TREATMENT OF TB–NP PATIENTS*

STAFF MEMBERS, VETERANS ADMINISTRATION HOSPITAL, BROCKTON, MASS.

PHYSICAL MEDICINE IN A NEUROPSYCHIATRIC TUBERCULOSIS PROGRAM

Jacob L. Rudd, M.D.

Chief, Physical Medicine and Rehabilitation

The Brockton Veterans Administration Hospital contains a separate Neuropsychiatric Tuberculosis Building. In it are sections for physical, occupational, exercise, and educational therapy. In these areas a definite schedule for approximately 150 NP-TB patients is being furnished.

The hospital acts as a center for the entire New England Area for the care of veterans suffering from tuberculosis. Patients are sent here from all other veterans hospitals in New England if they suffer from a combination of mental disease and tuberculosis.

The traditional methods of treating tuberculosis have always included long periods of strict bed rest. The psychiatrists feel that this may be harmful to the psychiatric status. Statements such as: "Modifications in both the strictness and duration of rest therapy seems justified,"[1] and "Initial results with prolonged chemotherapy given with reduced amounts of rest or early ambulation are said to be encouraging," express the present attitude of some specialists in regard to bed rest. Activity is considered generally not harmful to the tuberculosis state and helpful to the psychotic condition. The patients who are not included in this intensive program are those with recent hemorrhage, marked weakness or toxicity, shortness of breath or fever. They number less than 10% of the total NP-TB patient load.

The phthisioligist and psychiatrist[2] have requested a program in which the therapists supply relaxation and/or exercise as indicated, for almost all of the tuberculosis-psychotic patients. The neuropsychiatric tuberculosis cases are almost all on streptomycin, para-aminosalicylic acid (PAS), isoniazid or pyrazinamide, usually in some combination of two or more. The result is, not infrequently, a decreased length of time in bed, early ambulation, and the opportunity to attempt increasing activity. However, this depends upon the individual case and each patient must be carefully evaluated before liberties are allowed. The effect of unlimited motion is being followed on an investigative basis. As long as clinical improvement occurs and there is no evidence that physical exertion aggravated the symptoms, the psychiatrist and phthisiologist agree that the patient's ability to unrestricted activity is worth testing. This is a study which is attempting to evaluate the effects of more or less unrestricted activity (some of it unavoidable) on psychiatric patients under treatment with antibiotics and/or surgery for a tuberculosis condition. During all this time the clinical course of each patient is followed closely by X-rays and sputum examinations. In none of the cases has there been any evidence of harm, although the time is too short to be able to accurately evaluate the program either from the psychiatric or from the tuberculosis standpoint.

In good weather, the therapists keep the patients active in a large enclosed play-area outside the building. In cold or inclement weather a special exercise area is used inside the tuberculosis psychiatric building. The physical activities for the tuberculosis-psychotic patient are directed toward the utilization of his energy in a socially aceptable manner as well as with a view towards an expenditure of effort suitable to his psychiatric-tuberculosis state. The treatments usually begin in small groups or on an individual basis, under supervision. Pitching horseshoes, ping-pong, weight-lifting, croquet, catching the softball or passing the volleyball as well as some of the other more or less simple games are encouraged. At the very beginning, 15 to 30 minutes was the time allotted for exercises with the remainder of the day spent in occupational, educational, or recreational therapy. The usual hospital routine on the ward, in the canteen, or in the dining room (for meals), was also included as part of the TB-NP patient activities.

New treatment methods for the NP-TB patient *may* make it possible to eliminate the long periods of bed rest and inactivity previously prescribed for the

*Presented at the Ninth Clinical and Scientific Conference, Association for Physical and Mental Rehabilitation, Boston, Mass., June, 1955.

[1] Mitchell, Roger S.: Whither the TB Hospital? Bulletin National Tuberculosis Association, pp. 21-22, February, 1954.

[2] Aaron S. Mason, M.D., Chief, Professional Services, Veterans Administration Hospital, Brockton, Massachusetts.

acid-fast cases. Since drug therapy results in earlier referral to the Physical Medicine and Rehabilitation Service, there is the possibility that this may eventually lead to the goal of completely unrestricted activity.

A number of the patients who are referred to the physical therapy section of the NP-TB building after lung surgery are given passive and active exercises with emphasis on the range of shoulder motion and maintenance of improvement of posture. When they are able to increase activity, the corrective therapy sction takes over with an exercise program.

This brief discussion of the TB-NP program at the Brockton Veterans Administration Hospital is only a preliminary to the more detailed authoritative papers that follow.

CURRENT TRENDS IN THE MEDICAL TREATMENT OF TUBERCULOSIS

Emil Rothstein, M.D.
Chief, Tuberculosis Service

The Veterans Administration, following a trend which many state and mental health departments have been following, established throughout the country approximately 11 centers for the treatment of neuropsychiatric patients who have tuberculosis. Prior to the establishment of these centers, neuropsychiatric patients with tuberculosis were scattered throughout the various neuropsychiatric hospitals, possibly a dozen in one institution and 15-20 in another and therefore it was difficult or imposible to get sufficient highly specialized techniques and individuals to give them the treatment which was thought desirable. However, a number of years ago the VA designated certain hospitals to be centers for the treatment of the NP-TB patient. As I said, this was not particularly new. Many state and mental health departments had been doing this in the past and are continuing to do so. The hospital at Brockton is the center for New England for the treatment of NP-TB patients and it is in that connection that three of us appear on this panel together.

Up until about a dozen years ago, or so, the treatment of tuberculosis was very difficult in the psychiatric patient because of the fact that the bed rock of treatment was bed rest; and in the first place, it was very difficult to get psychiatric patients to take bed rest, and, in the second place, it was not very good treatment because of the fact that tuberculosis is a disease which in many instances would progress, eventually fatally, in spite of the rest therapy. Approximately ten years ago, however, when streptomycin was discovered, the entire aspect of the treatment of tuberculosis changed for the better. About six years ago another drug, para-amino-salicylic acid, or PAS as it is generally known, came into the picture, and about 3½ years ago another drug, isoniazid or INH, also appeared and by the use of these three drugs, the outlook for the tuberculous patient, whether he was psychotic or not, changed very markedly for the better.

Along with these drugs new surgical procedures came into use because of the fact that for the first time they could be performed with considerable safety. These largely consisted of removal of sick portions of lung tissue. The concept of removing a portion of the sick lung which is ill with tuberculosis is not a new concept, but until streptomycin and insoniazid and para-amino-salicylic acid were available, such operations were extremely hazardous and the death rate was very high.

A series of cases treated in that fashion in this area during WW II had a mortality rate ranging from 25-40%. Patients did not necessarily die at the time of surgery, but complications were extremely common; the diseases would spread into the adjoining lung tissue; and, as I say, the case fatality rate was very high. However, when streptomycin, PAS, and isoniazid became available, it was found that sick areas of lung tissue could be removed readily and with very little risk so that today the treatment of pulmonary tuberculosis, both in the psychiatric and non-psychiatric patient is very different from what it was ten years ago.

Practically every patient that comes into any tuberculosis hospital today is placed on some combination, as a rule, of these three drugs. He is considered also for some type of surgery, generally removal of the diseased tissue; occasionally collapse of the diseased portion of lung. Practically all the patients get well unless they come into the hospital with such advanced disease that both lungs are riddled beyond any hope, but, in the past, minimal tuberculosis which was never a very serious disease nevertheless had a very definite rate of progression and a long period of hospitalization. At the present time, minimal tuberculosis can be brought to a stage of arrest or inactivity in approximately 100% of the cases. Moderately advanced tuberculosis which used to be a very serious problem because of the fact that cavitation, sputum positive for tuberculosis bacilli, pulmonary hemhorrages, all were definite threats to the patients; the relapse rate was high. Recovery rate, while it was fairly good, never approximated what it is today. At the present time, moderately advanced tuberculosis can be brought to a stage of arrest or inactivity in practically 100% of the cases. Far advanced pulmonary tuberculosis used to be very difficult to get well and there is considerable question as

to whether 50% of far advanced tuberculosis patients ever could make any sort of recovery. Today, the large majority of these patients can be brought to a stage of arrest or inactivity by means of a combination of the drugs that I have mentioned plus, if necessary suitable surgery. In addition, such diseases as miliary TB and TB meningitis which used to be 100% fatal, are, in general, curable—miliary tuberculosis in close to 100% of the cases, tubercular meningitis in possibly 70-80% of the cases—if caught early enough. As a natural reflection of these improvements in treatment, there has been a considerable de-emphasis in other forms of treatment which had been relied upon very strongly in the past so that use of prolonged bed rest has dropped considerably. The older type of treatment which was going out even before these new discoveries came in—such as climatic therapy—has largely disappeared. Special diets have largely disappeared and the treatment of tuberculosis today is on a much sounder and more scientific basis, with effective anti-tubercular drugs associated, as I have said, in certain cases with surgery and in the vast majority of cases, leaving as an exception such far advanced tuberculosis as presents almost complete destruction of one or both lungs. In the vast majority of cases recovery can be anticipated and in a considerably shorter period of time and with much less economic loss during hospitalization and with a much higher percentage of rehabilitation afterwards than ever before. In addition the vast majority of these patients when they do get well are not disabled as far as earning a living is concerned. Obviously, this has to be qualified to some extent because if a patient has one of his lungs removed he is no longer able, perhaps, to carry pianos on his back, but with the exception of such gross abnormalities, the disability of the sort which we encountered a decade ago has been diminished very markedly.

THE PSYCHIATRIC ASPECTS OF TREATMENT OF THE TB-NP PATIENT

Charles Taffel, Ph. D.
Clinical Psychology Service

I shall confine my talk to Corrective Therapy with TB-NP patients primarily for ilustrative purposes, since it is my feeling that what we are concerned with here is not so much tuberculosis psychotic patients but psychiatric patients whose psychiatric treatment may be more complex by a physical disability. In other words, I am considering TB as a complicating factor in the treatment of a particular patient in the same way that psychiatric patients might have multiple sclerosis, or paraplegia. It might be more of a problem in treatment—not because tuberculosis itself presents any problems.

The treatment team in the NP-TB building at the VA Hospital in Brockton, in reviewing patients, tries to approach the treatment problem in an overall integrated way. By that I mean, in prescribing the treatment, we consider both psychiatric goals and goals in relation to TB. Thus, if CT is to be recommended, an attempt is made to evaluate the way in which this activity might help to advance the patient's discharge from the hospital. And by discharge, of course, we mean MHB, or Maximum Hospital Benefit, in regard to both phases. Now, of course, we do not feel as a goal that we necessarily mean complete remission, in terms of psychiatric status or complete cure of the TB. We take into consideration the extent of the disease, the duration, the nature of the illness and plan for this particular patient in accordance with these things. There is no feeling that might be expressed by the saying; "Well, let's get the TB straightened out and then we can get to the psychosis," or the reverse.

Our patients are usually referred to CT for the following reasons; (1) Hyperactivity that interferes with their reciving adequate rest and nourishment. For example, the patient who finds it necessary to be "on the go" all the time; pacing, unable to sit down long enough to eat a meal or to sleep, or to take advantage of rest periods—or even finds it impossible to sit through a discussion group in any way; (2) Assaultive or disturbing behavior that interferes with the activities of other persons; (3) Social regression to the extent that the patient seems unable to participate in any of the other PMRS activities. In this case the problem is not so much one of stimulation but of establishing an initial relationship with the therapist that can perhaps be transferred or generalized to other activities and therapists. It has been our experience that some patients who seem to have difficulty forming any kind of relationship with any member of the therapeutic team for some reason or other, can establish this kind of relationship on a physical level. They find it is less of a threat; they find it more possible for them to interact with another individual when, perhaps, some of their intellectual defenses don't seem to be challenged. Once we have made this initial relationship, then it is sometimes possible to proceed to other levels of relationships; (4) Pre-occupied, seclusive patients. This is somewhat similar to the last group except that the problem is primarily that of stimulation, an attempt to break through the barrier that these patients seem to set up for themselves. And we find, as mentioned previously, that many times CT seems less threatening to the individual's defenses and thus allows us, the therapists, to

make a wedge in this wall and thereby get at the patient.

These are primarily psychiatric problems but involved in them also are problems of work and exercise tolerance, other physical limitations and decisions as to the need of the individual patient for bed rest.

In terms of the NP-TB team expects of CT, we expect both general and specific results. The specific results are inherent in the nature of the referral, and may involve: (1) The re-direction of hyperactivity into controlled areas of tension release so that behavior on the ward may be more compatible with the patient's needs; (2) The establishment of an initial relationship that could be expanded to other activities. We have found that some patients previous to being referred to CT did nothing perhaps, but sit on the ward and even when they did attend the other activities, would not participate at all. After a course in CT they sometimes do attend all other activities and get some benefit from that attendance; (3) Another result we hope to get from CT is an interference in breakdown of habits of seclusiveness, distrust and preoccupation; (4) The introduction of the patient to himself as a physically functioning, competent individual, which might result in more confidence and self-respect. Much of the withdrawal of individual patients seems to be related to a severe lack of confidence in their own ability to function both on an intellectual and physical level. Sometimes, CT, through their regulated goals of introduction to physical activity can restore to the patient some self-respect as a physically competent individual, which is part of self-respect of the patient for himself as a complete individual.

Other goals may be building up the factors of muscle tension, timing and coordination. Those are specified results that we expect.

Generally, we expect of CT that which we expect of all other therapeutic approaches of the hospital. CT does not work in a vacuum: it is tied up with the entire therapeutic program of the hospital as a whole. These general aims, I feel are: (1) Bringing to the patient a sincere interest on the part of others in his well-being; (2) Teaching and re-teaching the habits of interpersonal relationships that will aid in the eventual social rehabilitation of the patient; (3) The breakdown of the patient's self-imposed restricted range of activity, both physical and mental; (4) The instillation in the patient of a desire to become well.

One of the problems of many hospital settings is the problem of communication. It was suggested that this audience might find of interest the method in which this is handled in the NP-TB building in Brockton. There are roughly two aspects to that: One is involved around the referral problem – in other words, the problem of how we get the information across to other services, using CT as an example. The other, is a review of that factor. How does the team get the information from other services—on what the patient is doing and what particular recommendations the therapy might have?

The team in the NP-TB building has gone through quite a bit of development since it started. What we now have is not a psychiatric team or a tuberculosis team but one combined team that meets together. At this particular team meeting, the chief of the TB-NP service, the staff psychiatrist, the ward physician, the psychologist, the social worker and the charge nurse of the ward in which the particular patient is being reviewed, are present. The team might make a decision and one of the decisions might be to refer this patient to CT, for any of the reasons that I outlined before. During this team decision we will also include the date that this patient can be expected to be reviewed the next time. This is not a hard and fast date: it can be changed if anything of importance develops. Then a memo is sent to PMRS, informing them of the changes, the decision, the reasons for the decision and other pertinent information for them to act upon. A copy of this goes to the ward so that the personnel on the ward will also be informed of any changes. In that way we have found that, not only the team is aware of any recommendations, but also the members of the hospital itself and also the members of the various PMRS sections.

In terms of the review factor—that is, getting information from the different services, we set a date for the next time that this patient will be reviewed. About four weeks before the patient is to be reviewed, a member of the team will send a notice or list of all patients that are to be reviewed and the date of review. This is circulated among the individual therapists who have these patients in their particular program. Thus, the therapist can write progress notes at a time when they should be useful and valuable, just prior to actual review. In this way the notes have meaning. This eliminates information that was previously found to be too old to be of any value in making current decisions. At the same time, a particular therapist may make a recommendation on the basis of his observation of the patient; the recommendation is also appropriate and current. This method, we have found, although not foolproof, has served to eliminate many of the communication errors that existed prior to the inauguration of this service.

DEVELOPMENT OF A CORRECTIVE THERAPY PROGRAM FOR THE TB-NP PATIENT AT BROCKTON

Kenneth Dening, M.A.

Chief, Corrective Therapy

The Corrective Therapy program for TB-NP patients was started at Brockton on April 13, 1954, at the request of the Chief of Professional Services. It has expanded from a daily patient load of four to thirty-five maximum, and has treated more than seventy-five individual patients.

The program was set up on an experimental basis only because there was no authoritative literature on which to base a program, and there is no positive proof that prolonged exercise assignments will not be harmful. On the other hand, there is no proof that these assignments are not beneficial in treating the patients psychiatrically as they are being treated for their tuberculosis. One of the basic reasons for this paper is to state what has been done at Brockton VA hospital in order stimulate further investigations, and to give a base line for that investigation.

A survey of twenty TB-NP hospitals shows that one uses corrective therapy for active patients only; five use it with inactive patients only; and twelve use corrective therapy with all the patients. This indicates that some hospitals are using exercise therapy for both inactive and active tuberculosis cases; it gives no hint as to the extent of exercises or the type; it gives no information as to restrictions, if any; it does not define the psychiatric classifications for patients treated.

The patients treated in corrective therapy at this hospital represent all psychiatric classifications, and fall into the following categories:

a. Psychiatrically disturbed and regressed patients with active tuberculosis.

b. Psychiatrically disturbed and regressed with inactive tuberculosis.

c. Patients with active tuberculosis whose behavior is psychiatrically good.

d. Patients with inactive tuberculosis whose psychiatric behavior is good.

The program has gravitated toward treatment of patients in the first three categories. Those few patients referred for treatment in the last category were treated for two reasons:

a. Evaluation of physical strength, endurance, or work tolerance prior to assignment in Industrial Therapy.

b. Specific development or supervised improvement of strength and endurance.

The program suffered initially from limitations of space and resultant limitations on equipment. This difficulty still exists to a certain extent, but development of the program has pointed up the still unproved concept that the modality, within reasonable limits, is secondary to the role and initiative of the therapist and is dependent on his personality, ingenuity, and other individual characteristics.

The program was started on the ward, using a day room as an exercise area during morning rest period. Patients who were assigned were all disturbed patients who were ward management problems and who did not rest anyway. However, despite the fact that the patients did not take their prescribed rest period, it developed that all patients were extremely suspicious of the therapist's intentions, and of doing exercise which had a semblance of organization. This was true of all patients assigned during the first two or three months. I feel that this was a normal reflection on earlier attitudes toward exercise which existed in the various TB hospitals from which all the patients had been transferred and the concept of total rest for TB which has existed for many years. Hospitals undertaking the establishment of an exercise program might take note of this fact since it appeared to be the largest single deterring factor in the development of the corrective therapy program. As the patients become accustomed to the program they begin to understand the constructive use of the exercise therapy, and do not consider it a punitive measure aimed specifically at them by the ward physician or psychiatrist. In addition, all hospital patients become acquainted with the program.

Since the first of August, 1954, the corrective therapy section has had one full-time therapist in the TB-NP Service for a full day including the normal rest periods. This is augmented by additional help whenever permitted by the dictates of the master schedule.

Patients were initially referred by the ward physician, but this is accomplished now by the psychiatric team which consists of the ward physician, the psychiatrist, the TB specialist, the psychologist, and the social worker. Referrals follow standard procedure through the Chief, Physical Medicine and Rehabilitation Service to the section chief. They list the diagnosis, precautions, treatment objectives, and any other pertinent information. The TB specialist originally listed the time limitations ranging from five minutes to one hour on all patients with active tuberculosis. This procedure is not followed at present except in special cases. It has been left to the discretion of the therapist to determine the amount of exercise that the patient can comfortably take.

Our experience indicates that the patient invariably paces himself according to his physical ability and will rest when, and usually before, he actually

needs it. In treating some hyper-active patients the therapist finds it necessary to enforce rest. He watches for shortness of breath, profuse or abnormal sweating redness of the face and neck, and excessive coughing or expectorating. In nearly all instances, supervision such as this will halt a patient's exertions much sooner than might be the case in the ward room or seclusion room.

Program

The program was developed cautiously in order to allow for careful evaluation of effects. From this cautious beginning has evolved a program which does not differ greatly from those which are used for psychiatric patients who do not have tuberculosis. The size of the groups is limited according to type of patients assigned. No group exceeds eight patients. The ward physician and nurse have been very helpful in keeping groups as homogeneous as possible from the standpoint of mental illness. Regressed patients are treated in groups or individually from hyper-active patients: patients who were able to function on a reasonably good level from a social standpoint, are treated in small groups designed to stress elements of socialization on a higher level than for regressed or hyper-active patients.

The program is carried out in two unused ward rooms at present and is moved to an outdoor area whenever the weather permits. With the permission of the Chief of the TB-NP Service, an issue of jackets was obtained and stored in the patients' lockers on the ward. Use of the jackets permitted an extension of the outdoor activity program through the cooler days of Spring and Fall and into the Winter for all patients except those regressed or hyperactive patients who occasionally come to the clinic without shoes or in slippers.

The therapist follows standard aseptic techniques for TB units: the patient does not wear special protective clothing. ....

Objectives:

The objectives of this program differ from those of other units of the corrective therapy section in that they must in all instances be modified to acknowledge the fact that almost total rest has been considered the major factor in tuberculosis treatment for years.

1. Many patients assigned to Corrective Therapy do not attend other activities—initially because they refuse to attend, or because they are management problems in the Occupational Therapy shop, or the Educational Therapy clinic. With one exception, patients who were initially assigned to Corrective Therapy have since begun to follow the regular ward programs and attend with reasonable regularity. One of the objectives, therefore, is to help increase the scope of the patient's program in the Physical Medicine Rehabilitation Service.

Hyperactive patients with active as well as with inactive tuberculosis, are treated with activities to produce a sedative effect through energy expenditure of a specific type. The amount of expenditure, and how it is to be spent, are basically set up by the prescription, and depend on the therapists's judgement to carry out the exercise. Release of aggression, excessive energy and hostility, relief of assaultive behavior are primary objectives for these patients, as indicated by the prescriptions.

3. As with all psychiatric patients, one of the objectives is to encourage socialization. When the primary aim of release of aggressive tendencies is met, for example, the therapist introduces the patient to progressively more complex situations in which he is directly and indirectly encouraged to socialize with other patients at whatever level he is most capable of doing. This objective applies to regressed patients as well.

4. One of the objectives for patients in the third category, (active TB, acceptable psychiatric behavior) is to furnish a progression to the adaptive sports program which all patients on inactive tuberculosis status follow as soon as they are considered ready from the psychiatric viewpoint. Here corrective therapy lays the foundation for small group and team work, evaluates the patient's physical abilities such as strength, endurance, skill, and coordination. In addition, through the medium of regular progress notes (submitted not more than 3 months apart) the patient's behavior in and reactions to exercise situations are recorded; his individual peculiarities and needs are noted as they relate to play or exercise situations.

5. The very fact that patients participate in Corrective Therapy programs and are allowed to express themselves through physical activities, relieves the ward of certain responsibilities through this period so they can concentrate their efforts on general nursing care and medical problems. Therefore; one of the objectives must be to help make the patient a better ward citizen. If a hyperactive patient has expressed his aggressiveness in the clinic, he may be willing to take his drug therapy without creating a disturbance. Patients who are referred for relaxation procedures because they assume bizarre postures on the ward or in bed may be taught to relax properly in bed, movements may become more fluid through the use of continued physical exercise of a rhythmic nature. These patients are also less of a problem on the ward because they can receive more benefit from rest periods or because they are receptive to suggestions from ward personnel that they use the toilet, go to their own room, or the day room, and attend other activities.

The therapist picks up his groups on the ward and returns them after the period. This creates a strong liaison between the ward personnel and the therapist and strengthens the assiciation between therapist and patient. It gives the therapist an additional problem in motivating a patient to leave the ward initially, but the advantages of the association, in our experience, far outweigh the single disadvantage. The problem of motivation is present not only in bringing patients off the ward but in engaging them in appropriate activities. This is particularly true for regressed patients. They must be intelligently worked into activities in a new environment and care must be taken to see that they are not frustrated by physical ineptness or association with other patients.

Modalities:

The actual activities used differ greatly with the patient's individual need and would be the subject for a separate discussion. Essentially, all modalities used in the regular Corrective Therapy units are also used in the TB-NP Service. They vary from the simplest motivational attempts to games requiring teamwork and close social interaction: From single response types of exercise such as kicking a ball, to vigorous bag punching, weight lifting, and resistive exercises. The criterion for their use must be the physician's prescription. The following notes may be of interest:

1. We do not use activities which involve continual running.
2. The program has used relaxation procedures for both hyperactive and regressed patients. It is felt that relaxation procedures for hyperactive patients following exercise, are helpful in establishing a pattern for rest as well as relieving tension. When carried over to the ward situation by the therapist, experience indicates that it would be quite effective. Unfortunately time has not permitted proper follow-up on this concept.
3. The Roland Technique for Relaxation and Persuasion has been used for mute catatonic patients with the immediate objective of improving verbal socialization within the group. Although the author has no doubt as to the effectiveness of this treatment and the value of its application to TB-NP patients specifically, no valid observations could be reached on five patients so treated because of the complicated effects of the new tranquilizing drug therapies.
4. As a specific example of progression in the program, one case is cited:

   DX: TB pulmonary, moderately advanced, active (non-infectious post-operative, resection November 1953.

   RX: Provide acceptable outlet for aggression.

   The patient did not go to E.T. or O.T. when initially asigned 4-13-54. He was suspicious, hostile and aggressive. In the clinic he worked with the medicine ball, did bag punching and played catch with the therapist, in which he could work out aggression very satisfactorily by simply "firing" the ball. He tired easily, although assigned for a half hour of exercise.

   The time increased to one-half hour without undue fatigue and was extended to forty-five minutes. As the patient improved psychiatrically he entered into small group work, first in circle ball passing, horseshoes in doubles or singles, then in adapted softball games with small groups. The original treatment aim had been met; the patient had been placel on inactive TB status and was transferred to another ward.

   1-5-55.—Patient was transferred to the regular ward program.

   This is a brief account to illustrate the changes in effort and use of modalities to meet the changes in the patient's behavior and status.

The ultimate succes of the program depends on the application of recognized principles administered by the therapist. It is reached through an intelligent approach in his daily contacts with the patients.

Following is a summary of patients assigned to Corrective Therapy:

Discontinued—refusal to attend	1
change in clinical status (operation)	12
Transferred to standard ward programs	26
Transferred to other services	4
Transferred to other VA hospitals	2
Discharged: regular	2
to member-employee program	2
Continuing	30
Total:	79

THIS CHRISTMAS — GIVE TO THE SCHOLARSHIP FUND!

UNDERSTANDING THE PARAPLEGIC*

HERBERT S. TALBOT, M.D.**

The approach to rehabilitation must include not only an appreciation of the presenting disability, but an understanding of all of the patient's associated dysfunctions. This is especially the case in patients with spinal cord injuries where the most obvious disability, the paralysis of the extremities, is only one of a number of manisfestations, and not, perhaps, the most important; certainly it is not the most dangerous to health or life in a civilized community. We must survey all the disorders which have developed in consequence of the original injury, and it is worth while to do this even though limitations of time permit no more than a brief and perhaps over-simplified survey in outline. The headings are perhaps arbitrary; they derive rather from symptoms than anatomical physiological considerations. All of these disorders, of course, stem either directly or indirectly from the cord injury. Some of them, however, manifest themselves quite obviously as disturbances of the nervous system, while others represent secondary consequences and are recognized by symptoms arising in other systems. Thus we may speak broadly of the direct neurological and the indirect extra-neurological manisfestations of cord injury. Finally, it is important to recognize that these disturbances do not exist independently but show marked reciprocal effects each upon the other. They may be viewed separately only in an academic sense. In a patient, they exist in the context of the whole organism and must be so considered.

Of the neurological manifestations, the most apparent, of course, is the paralysis which, in the sense here used, means not the loss of all capacity for motion, but, rather, the loss of voluntary motion. The distinction is more than verbal, for involuntary motion, appearing as spasm of varying types and degrees, may stand as a serious impediment to rehabilitation. Further, by throwing the patient into distorted attitudes, it may favor the development of pressure ulcers. Most patients can adapt themselves to a minor degree of spasm, and even make use of it, but the severe forms are an unmitigated handicap. This is not the occasion for a discussion of the cause of spasm, and there is, in fact, no general agreement, although a great many theories have been suggested. In some instances, it seems to be augmented, if not actually caused, by a recognizable focus of noxious stimuli such as a pressure ulcer or bladder calculi, but usually no such contributing agent is found. In treatment, a variety of drugs and physical modalities have been employed, usually with little success. Occasional favorable reports of the efficacy of one means or another are seldom supported by further evidence, and, by and large, the only effective treatment for major spasm in the present state of our knowledge is interruption of the anterior roots supplying the involved myotomes, either by surgery or by alcohol block.

The loss of normal sensation is exceedingly important since it deprives the patient of one of his most valuable means of adapting himself to his environment. Constant vigilance and ingenuity are required to safe-guard the patient in the absence of those signals which formerly warned him of harmful influences near at hand. The danger from burns is a case in point. Less obvious, but possibly even more important, is the effect of the loss of normal sensation upon the development of pressure ulcers. Normal individuals, because of the discomfort involved, either avoid or change attitudes which result in continued excessive pressure being brought to bear on any given spot. The paraplegic or quadriplegic, quite apart from his limitation of motility, is unable to recognize such excessive pressure. This is not the only factor in the etiology of pressure ulcers, but it is an important one in some cases.

Strangely enough, although these patients have such marked sensory deficits, a considerable number of them experience pain, usually in the lower extremities. Here again, a discussion of the etiology and the pathways would lead us too far afield. It is probable that in many instances, the patient's recognition of pain results from abnormal stimuli or even the absence of normal stimuli from a given area, rather than from activity of the normal pain mechanism. It has been interesting to observe that in a very large group of cases, a majority of the pain problems were totally eliminated by the elimination of all narcotic medication. Of those remaining, neurosurgical intervention has been useful in a considerable number, usually in the form of cordiotomy.

Of particular interest are those neurological manifestations which arise from disturbance in the autonomic pathways. These, as might be expected, are more prominent in the upper dorsal and cervical lesions, although they also occur to some degree in lesions at lower levels. Some are of no great importance,

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such as minor vasomotor and sudomotor phenomena, including flushing, goose-pimples, and perhaps occasional mild headaches. Sweating may constitute a major problem, either by its absence or by its excess. Patients who cannot sweat have difficulty in maintaining their thermo-regulatory mechanism, in consequence of which they suffer intensely in hot weather. These should preferably be maintained in an air-conditioned atmosphere. Excessive sweating, which may be so marked as practically to drench the patient within a very few minutes, is a matter not only of discomfort, but of some danger, particularly during cold weather. Definitive control can sometimes be achieved by sympathectomy; symptoms that are anything less than excessive may be fairly well controlled by various drugs of the atropine group. It has been observed that excessive sweating has a tendency to diminish over a period of months or years. This tendency to spontaneous correction of automomic dysfunction is not infrequently observed in connection with other phenomena, although not with all.

The most important of the autonomic manifestations are those associated with alterations in the blood pressure, and these may work in either direction. To begin with the less important, postural hypotension is, as the name implies, a fall in blood pressure induced when the patient rises from the recumbent to the sitting or standing position. This may be so marked as to cause syncope and, in consequence, is rather alarming to the patient. It is, however, not too difficult to control, the most practicable method being the administration of one of the pressor drugs shortly before the patient sits up. The application of a firm abdominal binder is also of value. Happily, this response has a tendency to correct itself over a period of months. Of considerably greater importance, and with little or no tendency to spontaneous improvement, is the so-called pressor reflex, whereby, as the result of certain stimulation, the blood pressure rises to uncomfortable and even dangerous levels. In most cases the effective stimulus can be traced to the pelvis, usually to a distended bladder or rectum. Because bladder pressures in paraplegic and quadriplegic patients have a tendency to be higher than normal, this organ is usually most directly concerned. When the symptoms are sufficiently alarming, it may be necessary to interrupt the nervous pathways over which the reflex is mediated.

Turning now to what have been designated as the extra-neurological manifestations, the first of these, not necessarily in the order of importance, is the tendency of these patients to develop pressure ulcers on the surface of the body. This subject has been widely discussed and requires no further stress now. The development of pressure ulcers is associated, in part, with disturbed sensation, in part probably with alteration of the local circulation, and there may be other factors as well. What stands out beyond all doubt is the fact that the only possible way of avoiding pressure ulcers is to avoid pressure, and the only possible way of treating them is to remove the pressure which was the original cause, regardless of whether further treatment is to be based on purely medical or combined medical and surgical care. An example of the inter-relationship of these varied manifestations is provided in the instance of a pressure ulcer developing is a result of a patient's abnormal attitude, due to spasm, and the futility of any attempt to treat the pressure ulcer until after the spasm has been corrected.

These patients are subject also to a wide variety of metabolic disorders which have their origin in various circumstances associated with the paraplegic state. Some are entirely non-specific; trauma, for instance, and prolonged recumbency are both known to have a drastic effect upon certain metabolic processes. To these may be added more specific effects, such as the toxemia from infection of the pressure ulcers and the almost invariable infection in the urinary tract resulting from the bladder dysfunction. Certain of these metabolic derangements stand out as being particularly important. The mobilization of calcium which follows severe trauma, and which is accentuated during prolonged recumbency, unless adequate precautions are taken, was formerly responsible for the high incidence of kidney stones in these patients. Control of these factors, combined with adequate care of the urinary tract, has reduced this incidence to something less than 2%. The tendency for recumbent patients to develop a negative nitrogen balance is also significant, and must be overcome if the patients are to be maintained in a state of adequate nutrition. Wherever there is a long-standing suppurative infection, there is danger of the development of amyloidosis, and this has been most evident in patients with long-standing joint infections resulting from penetrating pressure ulcers. All of the Paraplegia Centers in the V.A. system have reported deaths from amyloid disease at one time or another. The long-standing urinary tract infection, unless adequately controlled, may result in chronic atrophic pyelonephritis with an end stage in renal insuficiency and death from uremia. These two conditions, in fact, amyloidosis and chronic pyelonephritis with renal insuficiency, are at the present time the chief causes of death among paraplegic patients. There is some consolation in this fact that the patients who now die from these causes have had the underlying conditions for many years. It may be hoped that more recent patients treated in

the light of our better understanding of these problems will escape these hazards.

Visceral disturbance resulting from injuries to the spinal cord present a constant problem in the care of these patients, and a serious obstacle to rehabilitation. The most serious is the dysfunction of the bladder and the long train of consequences which follows—bladder and renal calculi, urinary tract infections, renal insufficiency, uremia, and death. The health of the upper urinary tract depends upon a healthy lower tract, functioning with at least some semblance of normality. The care and training of the bladder, therefore, is not only a rehabilitory measure calculated to make a normal social and vocational life possible, but a fundemental safeguard of the patient's health. The problem is much too complicated to be discussed at this time in more than the most general terms. Suffice to say that in most instances well-trained reflex bladder can be developed whereby the patient will have adequate capacity, will void without artificial drainage, and will have reasonably good control of urination. Achievement of these aims depends upon painstaking day-by-day care on the part of physicians and attendants, and a complete understanding on the part of the patient, not to mention his unremitting cooperation. There is no shortcut to success in this endeavor, but, once achieved, it is worth whatever it may cost.

Training of the bowel to a reasonable simulacrum of normal function can also be accomplished and, in fact, it can be achieved more easily than of the bladder if started promptly. Once the patient has become accustomed to depending upon enemata for adequate evacuation, it is exceedingly difficult to retrain him to get along without this inconvenient and sometimes harmful aid. As in the case of bladder training, the bowel training program should be carefully worked out and meticulously followed for each individual.

There are disturbances of sexual function which, although they dod not alter the essential sexuality of these patients, do affect fairly drastically its neuromuscular component. A considerable majority of patients with cord injury retain a reflex type of sexual function, and practically all retain their normal sexual characteristics and interests. With appropriate education of the patient and his wife, a reasonable sexual adjustment is possible in many more instances than was once considered likely. A certain number of these men are capable of paternity. Here again, there is no high road to success, and each individual problem must be individually considered.

Finally, more because the question is so regularly raised than because it has been a conscious part of the approach at our clinic, mention may be made of the psychological factors involved in the process of adjusting these men to a new way of life. To begin with, it must be understood that these patients are no more potentially psychopathic than any other surgical patients. The emotional difficulties implicit in adjustment to chronic illness, to chronic discomfort, and severe physical disabilities are not to be denied. On the other hand, no one who has worked with large groups of these patients during the last ten years, in this country, can fail to be impressed with the rarity of real psychiatric problems. When they do occur, they are likely to have been present before the injury. The dramatic manifestations of bitterness and frustration which are so popular in plays and novels are almost entirely absent in our experience. That these men need help and guidance, based upon a sound understanding of human emotional and mental processes, is obvious. They do not, however, categorically require the specific attention of psychological investigators except in unusual situations. What they do require is the devoted attention of a wise and compassionate physician who need not be labeled a psychiatrist in order to posses these characteristics.

This, then, in highly abbreviated form, is a review of the background we must understand if our handling of these people is to be effective. Again, it must be borne in mind that all of the problems resulting from these various disorders must be viewed together; they must be seen as a whole and, except when an emergency arises, there is no justification for efforts directed at the treatment of anyone unless all of the others have been considered and the effect upon them duly evaluated. Nature recognizes no specialization, and the organism succeeds because the functions of all its parts and systems are accurately integrated. The study and treatment of these patients, therefore, must be integrated no less.

THE USE OF COMBINED CORRECTIVE THERAPY TECHNIQUES AND ECT IN THE TREATMENT OF CHRONIC CATATONIC SCHIZOPHRENIA: A CASE REPORT

ARTHUR W. McMAHON, JR., M.D.*

RICHARD L. COMSTOCK, B.S.**

Introduction

Catatonia is a form of schizophrenia which is readily diagnosed because of its rather striking symptomatology. Some of these symptoms, such as the rigidity and catalepsy, have suggested a primary motor disturbance to many investigators.[1,2] Thus, at least two distinct schools of thought exist regarding the etiology of catatonia. Although the controversy between psychological and physiological schools still continues, we feel that the observations of Cheney[3] and, more recently, the work of Straus[4] seem to reaffirm that there is no primary impariment of the motorium, but rather a psychomotor impairment dependent upon consciousness for its maintenance.

Not only has catatonia suggested various etiologies but it is the most variable form of schizophrenia in its treatment response. Catatonic patients are known to respond to electric shock treatment, sodium amytal, carbon dioxide, insulin coma therapy, and psychotherapy, and some instances of spontaneous remissions have been reported, even after a prolonged illness. These facts complicate the evaluation of any favorable response by a catonic patient to a new form of treatment. It is with this awareness that we venture to report the favorable response of a severe catatonic patient to a new treatment approach. This improvement, though slight, has been persistent, and we feel that it suggests a method which might prove successful in similar cases.

Case Report

The patient is a 36-year-old, white, World War II veteran, admitted to Winter VA Hospital for the first time in September, 1947 because of symptoms of seclusiveness and destructive threats. He was brought to the hospital by his brother, who had first became angry at his seclusiveness and later frightened by the patient's threats and bizarre behavior.

The patient's history reveals that he was born in 1919, the youngest of five children of a Midwest farm family. His mother was born in Russia, came to this country in 1910, and still speaks English very poorly. She was described by all who knew her as a volatile, emotionally unstable woman who was overly protective of her children. She was extremely grieved by the death of her husband of influenza two months before the patient's birth, and reportedly took the patient as a "substitute for her lost husband, lavished affection and attention on him and breast-fed him until he was two-years, seven months old." In 1921 she remarried—this time to a German farmer described as a severe and quick tempered man resented by all the children. As a young child, the patient was quiet, compliant, and somewhat withdrawn. He finished grade school at the age of 15 and then worked on his stepfather's farm until he was able to get a job in the railroad shops, where he remained for a year, until his induction into the service. He is characterized by his employers as a slow but reliable worker who had few friends and seemed to prefer to be by himself. At the time of induction he was noted to be extremely nervous, cried profusely, complained of insomnia, and expressed fear of dying. Nevertheless, the patient was inducted into the service and served nearly four years, including ten months of combat in the ETO, without hospitalization. It is reported that his seclusive behavior continued during service; he made few friends and did not participate in the usual diversions of his fellow soldiers.

He was discharged honorably as a private, first class, in 1954 and returned directly home. His family noted that he was more withdrawn and irritable upon his return than he had been prior to service, and he remained in bed constantly for the first three weeks at home. Finally, after much urging, he returned to his job in the railroad repair shops. An el-

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[1]DeJONG, H. *Experimental Catatonia.* Baltimore: Williams & Wilkins, 1945.

[2]GELLHORN, E. *Physiological Foundations of Neurology and Psychiatry.* Minneapolis: University of Minnesota Press, 1953.

[3]CHENEY, C. O. and DREWNY, P. H., JR. Results of Non-Specific Treatment in Dementia Praecox. *American Journal of Psychiatry.* 95:203-217, 1938.

[4]STRAUS, ERWIN W. and GRIFFITH, RICHARD M. Pseudoreversibility of Catatonic Stupor. *American Journal of Psychiatry.* 680-685, 1955.

der brother had an apartment and persuaded the patient to move in with him, but gradually the brother became more and more angry by the patient's refusal to participate in any kind of social life. It is reported that the patient had been severely disappointed when his girl friend had preferred another man in 1941, and had not dated since that time. In response to his brother's growing anger, the patient became threatening and finally the brother brought him to the hospital after the patient had threatened to burn the brother's house down.

Upon admission to the hospital in September 1947, the patient was found to be preoccupied and spoke in a low, monotonous whisper with frequent blocking. He was oriented and stated that his illness was due to strain of overwork and he wondered if a circumcision had been the cause of his difficulty. His greatest impairment seemed to be in the area of affect, where an all-pervading apathy and slowed response was noted. His physical, neurological and laboratory examinations revealed only moderate obesity. He was hospitalized on a closed ward and shortly after admission was given a series of electric shock treatments with little improvement. In 1948 he was given a series of 82 insulin shock treatments, with 46 comas, 12 of which were combined with EST. This treatment was followed by a short-lived improvement, from which he regressed to a mute, stuporous state with rigid posture, bowed head, and flattened affect. Negativism increased to a point where, in February 1948, he would eat no solid food and developed a feeding ritual whereby he would take nourishment only in a special cup, which had to be placed in his open palm and which he brought to his mouth by balancing it on his open palm, and rotated towards his mouth from the wrist. After sipping from the cup he would then extend his palm for the empty cup to be removed. He was presented for lobotomy in 1949 but was refused because of his extremely regressed condition. From 1950 through 1953 his behaviour remained essentially unchanged. He was almost completely mute, remained in a semicrouched position with his hands over his eyes, and was fed almost completely by liquid diet, according to the above mentioned ritual. During this three year period he remained negativistic and resistive, but with urging would go through the motions required by the total push nature of his ward. So that up to the time of the onset of the treatment to be described, the patient had remained for six years in a chronic, catatonic state without remission and without response to numerous and varied therapeutic attempts to alter this state. He had become a severe management problem, representative of hundreds of chronic patients now residing in mental hospitals.

Treatment:

In January 1954, therapists from the Corrective Therapy Department were individually assigned to the various sections of this hospital for specialized use to be determined by the specific needs of the section. In consequence of this new arrangement, this patient was one of several chronic patients who were assigned daily sessions with the corrective therapist. The new program included biweekly conferences at which times the corrective therapist, the ward doctor, and ward nurse would consult together regarding the special application of medical, psychological and corrective therapy technique to the individualized needs of the patient.

On the first day of the treatment program the patient was escorted to the clinic, where he was told he was going to receive daily treatments to improve his physical condition. He was encouraged to assume the supine position, and the corrective therapist began passive exercises to the legs, arms and fingers. These treatments lasted for 20 minutes each and ended with a back rub and masage of the forehead and larynx. This treatment continued for approximately three weeks, during which time the patient remained dull and apathetic, and showed no emotion of any kind during the treatments. At the end of three weeks, the patient began to assist the therapist with passive exercises and slowly began to perform the exercises while the therapist counted cadence, but he remained expressionless and performed these exercises with his eyes closed. This phase of treatment lasted for another three weeks, each session lasting about 30 minutes and each session ended with a massage of the forehead and larynx.

This plan of treatment follows the general outline of treatment prescribed by Paul Roland,[5] and the phase of treatment described up to this point has been designated by Roland as the relaxation technique. The purpose of the massage to the larynx is to obtain relaxation in the muscles concerned with speech, is accompanied by soft spoken encouragement and reassurance, and is intended to influence the mutism.

In a conference between the corrective therapist and the patient's doctor, it was felt that the patient could now be moved off the table and do his exercises in a standing position. This was presented to the patient in a matter-of-fact manner and he complied with no emotional response. Then the therapist demonstrated some new exercises to the patient which he soon began to perform to cadence called by the therapist. The patient now began to observe the therapist more closely, showed first signs of interest, and began

[5]ROLAND, P. E. An Exploratory Training Technique for the Reeducation of Catatonics. *American Journal of Psychiatry*. 105: 353-356, Nov. 1948.

moving his lips in cadence with the exercise. The passive forms of exercise were eliminated but the back rub was continued.

In the next conference with the ward physician and therapist, it was decided that the patient might be ready to engage in more direct contact with the therapist and the method selected was the so-called test of individual skills. The patient was instructed that new exercises would begin and the therapist chose Indian hand wrestling. For the first time the patient showed an eagerness to participate, and his first affective response was noted. Whenever he defeated the therapist in hand wrestling, he would respond with a smile. At about this time the patient's ward behavior began to change. He was more genial, less negativisctic, began to attend other activities more readily, and became more friendly with ward personnel. However, the feeding problem persisted as a major management problem.

In the next conference it was decided to attack the feeding problem, and the following plan was outlined. Because of the rapport established between the corrective theraist and the patient, the therapist was to encourage the patient to eat while continuing the Roland relaxation technique since the latter had been reported to be effective in lessening feeding problems in catatonic patients. In this case, the patient was ordered a late breakfast on the ward and the corrective therapist sat with him and encouraged him to eat. The patient was even left alone for a short period to observe the food and have an opportunity to examine it if he wished to. However, no results were forthcoming after two weeks of such treatment.

It was then decided to add ECT to the treatment program, and he was given ECT three times weekly. In addition, he was seen every morning for 30 minutes in a small room off the ward, where his tray was brought to him by the aide. The therapist continued to stay with him and encourage him to eat, but he showed no response. During the other two meals of the day, when he went to the mess hall, he began throwing food on the floor. After a period of eight ECT's, there was no change in the patient's feeding habits.

At the next conference it was prearranged that the doctor would drop in on the therapist and the patient during one of these breakfast sessions and inquire as to the progress of the patient. The therapist was to reply that previous attempts had failed and that the feeding problem persisted, and the doctor was to respond by suggesting that tube feeding begin. This was carried out and the patient responded with some anxiety, stating that he did not have any place for the tube or food to go down, and that is why he had not eaten. The doctor then reassured the patient that he did have a place for the food, and on the following day the patient began eating three meals a day.

During the entire period of attention to the feeding problem, the corrective therapy regimen continued as before, and weight lifting and more vigorous calisthenics were added. The patient expressed some dislike for the ECT, but seemed more alert and worked harder than before at his exercises, occasionally asking a question about some exercise that puzzled him or about the new exercise that was being added to the program.

At the next conference, it was suggested that the patient might be ready to form interpersonal relationships on a more verbal level, although it was recognized that he might have difficulty relating directly, and so a book was chosen and the patient was encouraged to read to the therapist. This was introduced at the end of the regular exercise and back rub routine, and somewhat to the surprise of the therapist, the patient began immediately to read, although he occasionally had difficulty in the pronunciation of words. The therapist assisted him in this respect. After two weeks of this reading relationship, the therapist then began asking him simple questions about the text. The patient answered them, however, always referring to the text before answering. At about this time it was noted that the patient began to participate in ward cleaning, which represented a rather striking change in his ward behavior.

In the next meeting it was felt that the patient was ready to participate in group activities and was accordingly assigned to a small group of seven similarly regressed patients assigned to the same corrective therapist, with some broadening of the activities to include hikes, weight lifting, tumbling, calisthenics, etc. He participated actively in the activities but did not engage socially with the group. He was assigned to other activities, such as occupational therapy, where he has continued to participate quite actively.

Up to the present time, nearly a year after the maximum improvement, the patient has continued on approximately the same level of adjustment as when the individual program was discontinued. He is still a chronic patient, but is much less of a management roblem than he was at the time that the treatment was instituted. He continues to eat three meals a day, continues an active participation in corrective therapy, and occupational therapy program. He is, in general, less resistant and negativistic, has given up his feeding ritual, and is more readily contacted, although still shy and retiring.

Discussion:

The preceding has been a detailed description of a treatment method applied to a severely regressed catatonic patient who presented an extreme management problem representative of many patients now occupying beds in our mental hospitals. Although we recognize that this therapeutic approach has not produced anything like a remission of his illness, we do feel that it has been extremely effective in reducing the management problem and improving the patient's adjustment in the hospital. We feel that the electric shock treatments were an essential contribution to this improvement, but it is our opinion that his total response can only be explained by the combined effects of ECT and the corrective therapy program. We also feel that the importance of interpersonal contact with the patient through a corrective therapy program, tailored to the individual needs of the patient, is illustrated once again in this case. The frequent conferences between the corrective therapists, ward physician, and nurses and aides on occasion, played a vital part in changing the treatment program in accordance with the week by week response of the patient. Using the technique described by Roland in a flexible manner suited to the individual patient and introducing ECT at the appropriate time seems to have produced this, so far a lasting improvement in the patient's adjustment. His present condition is such that he now can be considered for trial visit planning, since with the elimination of the feeding problem, he could now be placed again with his own family or in a suitable foster home.

VA TO EVALUATE NP PROGRAMS

For the first time in medical history, Veterans Administration will make an extensive evaluation of mental patient care to determine what types of treatment and hospitals best promote the improvement or recovery of its psychiatric patients and the relative costs.

VA, which has one of the nation's largest psychiatric patient loads under a single medical management, said the preliminary phases of the pioneering project have been started.

The study will continue for five years, with probably 15 of VA's 40 neuropsychiatirc hospitals participating, according to Dr. Jesse F. Casey, director of psychiatry and neurology service.

Dr. Casey said the information to be sought is not now available from any source. When it is completed, he said, it should go a long way toward establishing psychiatric care on a much higher level of effectiveness and thereby speed the recovery or improvement of psychiatric patients at the least possible cost.

Dr. Casey explained that psychiatry still is virtually in its infancy. As a result, he said, the various treatment programs and types of hospitals in use today have been developed primarily on the basis of professional opinions which admittedly are not in perfect accord at this time.

"When we complete our study," Dr. Casey said, "we expect to have for the first time the solid factual information we need to guide us in developing the type of hospital programs which will provide the most effective treatment for the recovery or improvement of our psychiatric patients."

The VA study, Dr. Casey said, has three purposes: (1) to determine the relative effectiveness of different treatment techniques; (2) to determine the relative effectiveness of different hospital designs, staffing patterns, and program emphases, and (3) to permit valid estimates of the relative costs of the various elements in effective treatment programs.

Dr. Casey has appointed Dr. Richard L. Jenkins, a psychiatrist, as project director with headquarters in VA's Mt. Alto Hospital in Washington, D. C. Dr. Jenkins formerly was chief of psychiatric research in VA's Central Office at Washington.

Other professional personnel of the Central Unit will be a senior staff psychologist and Dr. Ruport Hester, psychologist-statistician.

An advisory committee drawn from the professional fields of psychiatry, psychology, medical statistics, sociology, and anthropology will serve as consultants to the project. They are:

Dr. Harvey J. Tompkins, director of the Reiss Mental Health Pavilion of St. Vincent's hospital in New York City and former director of VA's psychiatry and neurology service.

Dr. Paul H. Hoch, commissioner of mental hygiene for New York State at Albany.

Dr. George Kelley, professor of the department of psychology at Ohio State University in Columbus, O.

Dr. Frank M. Le Bar, professor of the department of anthropology at Yale University in New Haven, Conn; and,

Dr. Morton Kramer, chief of the biometrics branch of the National Institute of Health in Bethesda, Md.

Dr. Casey said the project calls for additional controlled research studies in several VA hospitals to answer such questions as the relative value of the new tranquilizing drugs, compared with older treatment methods.

Through the study, he added, VA hopes to be able to judge the effectiveness of other therapies in the treatment of patients in mental hospitals such as electroshock, group psychotherapy, individual psychotherapy, and the various programs of activity therapy now in use in VA hospitals.

All of the hospitals cooperating in the project will collaborate in a general study of admissions for a two-year period. At the time of admission, each patient will be rated as to the type and severity of illness and on other factors potentially important for a forecast of the probability of recovery.

These patients, Dr. Casey said, will be examined at stated intervals during the following 24 months to determine what improvement they may show and whether they are able to go home. In the intervening periods, records will be kept of the treatment measures used with each patient.

Dr. Casey said this information, plus such elements as ward size, hospital size, patient-staff ratios, and similar factors, will permit an evaluation of the most important factors that may have an effect on the recovery or improvement of patients.

Another phase of the project, Dr. Casey said, will be a follow-up of patients after discharge to determine what happens to them after they leave the hospitals. He said this information is expected to shed light on why patients are readmitted to VA hospitals.

A THERAPEUTIC POOL PROGRAM FOR ACUTELY DISTURBED PSYCHOTIC PATIENTS*

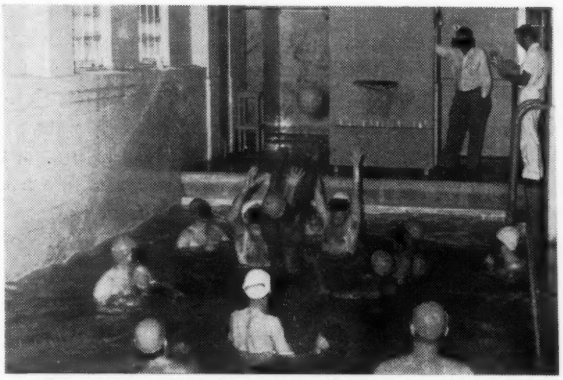
WILLIAM E. CULLY, M.A.**

The title of my topic is far reaching and complex because of the manner in which acutely disturbed psychotic patients display their disturbed states and the different mthods used in overcoming this problem. The Corrective Therapy Department at Coatesville VA Hospital has been operating two hydrogyms which measure approximately 35 feet by 15 feet in width, and with slopes from a depth of 3 feet at one end to 5 feet at the opposite end. We have had the surrounding areas of the pools and showers covered with non-slip type of material which has proved very satisfactorily in overcoming injuries that have occurred in the past from slipping and running which we have not been able to control at times.

One pool is equipped with an overhead hoist and a canvas liter and metal chair, which are all used in the therapeutic treatment of our neurological and orthopedic patients assigned to that part of the program.

These pools, we feel, are quite satisfactory in treating the type of patients assigned. Most non-swimmers fear deep water and dislike cold water. These two major problems are overcome in our situation. Any activity when conducted in the correct surrounding has a much better opportunity for accomplishment These pools do not impose any restrictions on the non-swimmer and allow proper supervision and maximum safety to all. They are so constructed that they resemble accepted type pools and the patients accept the therapy as a renewal of pleasurable experiences.

We have installed in both pools regulation basketball backboards and also rings for attaching volleyball nets. We have all known swimming inducements and safety aides, such as underwater masks, underwater goggles, bathing hats, ear plugs, nose clips, kick boards, adjustable swim fins, water wings and floatees. Also, incontenent pants, and different size rubber balls, such as the regulation basketballs, ten inch rubber playground balls, rubber footballs, ordinary size rubber balls, and handballs, all serve the purpose



Hyperactive Patients participating in a game of water basketball in one of Coatesville's hydrogyms.

in different activities conducted. The original thermostats have been changed to provide a constant temperature of the water at about 96 degrees Fahrenheit.

Sedation is usually one of the primary objectives in treating the acutely disturbed patients, and in our hospital, the hydro program has reduced the number of packs and tub treatments to a mere fraction of what they were prior to the inauguration of the program.

We maintain rigid sanitary conditions which include a daily chlorine count, weekly bacteria count and a complete change of water in the pool weekly and an accompanying scrubbing of the interior pool surfaces.

The hydrogym with the temperature maintained at 96 degrees Fahrenheit provides a warm neutral environment, vaso-dilation of the peripheral vessels, and muscular relaxation. It has been proven that inaction in a group or groups of involved muscles has definite effect on such mental activity as transient imagination and reflection. It has also been shown that at least 50% of nervous disorder shows itermittent hypertonicity of a skeletal musculature. Therefore, muscular relaxation by all means is important in achieving mental rest. The activity also acts as a tonic. It is a medium for vigorous or light exercise It aids in the elimination of waste products, which at one time posed a definite problem with many patients, and has been solved in some cases by the use of incontinent pants after a period of trial and error. It also provides alteration of the breathing activities of the

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**Chief, Corrective Therapy, Veterans Administration Hospital, Coatesville, Pa.

individual. The integument is a large organ which can be stimulated with pleasurable impulses being carried to the thalamus and the cortex. The feeling of warmth especially restores security to a person.

The therapists who are conducting our pool program are required to have a thorough knowledge of the patients assigned to their program, knowing their physical conditions, their likes and dislikes, and the objectives set forth by the Chief of PMRS. The key for the success of any hydro program is the corrective therapist, and his ability to establish a good rapport with the patient, and using this relationship in obtaining the desired objectives. The therapist should be thoroughly indoctrinated into all phases of hydro activities (and, if possible, be part fish, such as our own Fritz Weber, who, when his work day is finished, goes for a swim, believe it or not!)

In our pool program for acutely disturbed patients, we try to keep the group numbering from 10 to 15 patients in order that we can treat individually and adhere to the prescription. We make an effort to have at least two therapists with each group, one working from the area surrounding the pool and one in the water.

The time when patients are preparing to enter the water is the initial period and one of the most important phases of the program. Here, the therapist must encourage, motivate and assist patients in undressing and showering, and in using the toilet facilities. As you realize, initiating movement in the catatonic is as difficult as controlling the hyperactive and the acutely disturbed patients. The therapist's primary job is to get the patient into the water. Once there, many objectives have already been accomplished.

We use different methods in getting the patients started, depending again on the type of patients Some are ordered to get undressed, others are assisted by starting to undress them and then letting them finish. This poses a problem, in that with the assaultive type of patient one must exercise care and understanding while touching him or any part of his clothing. At times the therapist must accept excuses, such as "I don't feel good", "I don't want to go swimming today", "I'm afraid of water", "I don't like warm water', "I don't like cold water". Each day the problems the patient presents may be different, but each day our problem patient reports, the therapist approaches him and uses a different method until he can motivate him or persuade him to enter the water—oftimes settling for a shower or getting the patient to promise to go in the next day. It is amazing how they remember and usually carry out their promises. No patient is ever forcefully made to enter the pool, but we make sure they know that the doctor wants them to participate and is very much interested in what they do in the pool.

In the meantime, the therapist in the water has started the individual instruction period, and sees that those patients in the pool remain there.

Showering and using toilet facilities are completed as quickly as possible, and group instructions are started We usually start with an attention-getting type of activity, such as breath-holding in the jelly fish position which is a good measuring device, also for bouyancy and breath control. At the same time the pool quiets down and lets the therapist gain voice control. From here we can lead into different objectives, such as teaching different types of kicks, floats, swimming strokes, glides and other skills, always demanding and urging all to participate, not only as individuals, but as a group. We even use certain patients as guides, as examples. You can see how this would fullfil those patients in need of narcissistic gratification. About 10 minutes of the period are used in this fashion.

Next would be the period of activities of a group participation nature, such as water basketball which can be played with strict rules or of the rougher type where there are no fouls called Both types prove successful, except with the women patients where we use rules continuously. Then we have water volleyball with our own set of rules, such as off the wall is good, allowing as many taps as possible, off the ceiling is no good, and so forth. Also we use modified games of water polo where we employ a handball or a crutch tip as a puck. The objective is to put the puck in the gutter of the opposing team on the opposite side of the pool. This activity is really a rough one and a great deal of care and control must be exercised in keeping someone from getting hurt or injured. This is an excellent type of activity for the hyperactive type and again an excellent, socially acepted way of releasing hostility.

All these play activities should provide a good medium for development of such attitudes as fairness and cooperation. These activities place the individual constantly in situations which have a social significance, because they require responses involving the rights and welfare of others, as well as, the need to adjust to the motives, moods and intentions of others. We try to bring into play mental qualities, such as alertness, originality, initiative and resourcefulness.

The patient who is hyperactive is given the opportunity to dissipate a great deal of energy by performing exhaustive, resistive types of exercise, such as a swimming race against other patients or against the clock, or to see how many times he can push off from one side of the pool to the other side without stopping or even without breathing. He can wrestle

with the therapist, if applicable. He can also release hostility and secondary guilt by splashing and striking the water with his fist, feet, or with the palms of his hand. He can also throw the rubber ball at the wall or backboard or even at the instructor. In all exhaustive type exercises the therapist must improvise and let the patient perform while he, the therapist, conserves his energy. Only as a last resort will a therapist engage in water wrestling and the more tiring type of activities. I say this with reservation, in that the therapists are human and must run the pool program on an eight hour a day basis themselves and thus must pace themselves accordingly. We attempt to stagger the therapists in the more exhaustive types of exercise.

Many times the therapist must replace the superego in order to restrain the patient from destructive or combative behavior. It is very possible through persuasion, encouragement, praise and comradeship to help a patient to restrain his expressions of malevolence. At all times the most effective medium is to enlist the patients' conscious cooperation in alleviating this behavior. In our pool program, many realistic situations arise when praise, encouragement, and friendliness are the rewards for commendable behavior. Likewise, unfavorable responses are often criticised and reprimanded. Care and judgement should be exercised when using this form of therapy.

Different methods are used to end the period. Usually the loser in the game can swim the pool a certain number of laps, while the winners watch and cheer them on or egg them on, or everyone can swim, say 5 laps, if time allows. Also if time permits, let the patients have a little free play or basket shooting, surface diving or whatever they may desire to do. The last phase is mainly one of self-care activities. Let the patients take a cool shower, then dry themselves thoroughly. Then with the use of comb and brush, foot powder and so forth, he should be motivated to maintain his good personal appearance and grooming.

In conclusion, we know that a therapeutic pool program makes a positive contribution in both physiological and psychological phrases in the total treatment of the patient. Doubtless, the results obtained, and the success achieved, depends upon the therapist carrying out the objectives prescribed by the ward physician and the Chief of PMRS; and working mainly as a member of the team in order to offer the patient the maximum coordinated advantages. It has been our purpose in this short presentation to attempt to point out various techniques and procedures that we use at Coatesville, believing that we have helped in our contribution to the rehabilitation of the patient.

REPRINTS AVAILABLE

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THE FUNCTION OF CORRECTIVE THERAPY IN THE TREATMENT OF RHEUMATOID ARTHRITIS*

ALFRED ELLISON, B.S.**

It gives me great pleasure to be able to present this paper on the function of corrective therapy in the treatment of the rheumatoid arthritic patient and to describe how the corrective therapist is involved as a member of the team that is engaged in the treatment and rehabilitation of the patient.

Corrective therapy is a process in which the therapist considers the patient as a whole rather than any individually affected part and, therefore, with the arthritic patient as with other types of patients, we in corrective therapy are interested in activities that will teach the patient to live with his disease and prepare him to assume his place as an independent member of his community. The corrective therapist attempts to do this through exercises and activities designed for reconditioning and through training the patient to do all his self care and ambulation activities.

Because of the special nature of corrective therapy, the patient usually is not treated with this type of therapy during the acute phase of the disease. The joints involved are swollen, hot and red, acutely tender to touch and equisitely painful to motion. As long as the arms and legs are acutely involved, the patient is not ready to start reconditioning; at this time the joints are much too painful to permit training in self-care activities. An exception to this occurs when the disease is limited to only one part of the body; then according to the physiatrist's prescription, conditioning exercises for the uninvolved parts are given in order to prevent deconditioning during bed rest. In this acute stage, therapeutic considerations are chiefly concerned with the relief of pain and the prevention of deformities. For relieving pain, therapy depends on drugs and splinting. To prevent deformity, guarded joint motions following exposure to some form of heat are indicated and supplied by the physical therapist.

The next phase of the disease is the subsiding or sub-acute stage. The joints may still be enlarged, painful and tender but the redness and heat have disappeared. The patient's temperature has subsided and for the most part the pain is less severe. In this phase the three main factors are *controlling pain, restoring motion* and *restoring muscle tone.* As for pain, reliance must again be placed on drugs and perhaps some degree of splinting. Physical therapy modalities are continued to restore joint range and maintain muscle tone and heat in its various forms is continued as an effective form of treatment. To accomplish the objective of restoring joint range and building muscle tone, at this time in our institution the physiatrist reviews the prescription and usually adds another exercise period to the daily schedule of the patient and prescribes reconditioning or general bed exercises to be given and supervised by the corrective therapist. Exercises are graded and started cautiously. With joints that are involved, manual assistance may be needed so that the patient will be able to get full range of motion in the joint. Also a system of ropes and pulleys may be arranged so that the patent can move a limb actively as far as possible; then assist it to go beyond the limited active range of motion by pulling on a rope. Many wand exercises used in physical education drills are easily adapted to mild exercises for the arms and the wand can be used to have one arm provide assistance to the other in moving through the complete range of motion.

With joints that are not particularly involved, mild graded manual resistance is used to restore muscle tone and to counteract the effects that bed rest causes to muscles. In general, these exercises are designed to be preparatory to self-care and ambulation activities.

In the exercise routine of the patient with rheumatoid arthritis of the spine it is important to include breathing exercises in connection with arm raising exercises since the disease causes fixation of the thoracic cage. Back strengthening exercises are important maintenance exercises in order to prevent ankylosis of the spine from occurring in a non-functional flexed position. The breathing exercises, the practice of good posture and back strengthening exercises are measures that the patient is encouraged to follow closely not only during his hospital stay but at all times.

Finally, our physical medicine considerations

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**Chief, Corrective Therapy, Veterans Administration Hospital, Boston, Mass.

have to be discussed for the third phase of rheumatoid arthritis, namely, the chronic stage. Again there is the problem of controlling pain although in this stage the pain seems to be more of a stiffness and ache which gets worse when the joint is inactive and improves with moderate use. Most all patients that feel the stiffness and pain are reduced considerably after mild exercising. In this stage the physician tends to rely less on analgesics and more on physical medicine procedures. The patient is given a most diversified program which is designed to relieve the patient's pain, prevent or correct deformities, and to make the patient much more active.

It has been said repeatedly that whether or not an arthritic patient makes a satisfactory adjustment in life depends chiefly on the way he was taught to live with his disease. Therefore, the major contribution of the corrective therapist in the care of the arthritic apparently is teaching him self-care and ambulation activities.

The desire of the patient to be independent of nursing care and able to perform such activities as dressing himself, combing his hair, brushing his eeth, feeding and shaving himself, etc., generally provides motivation and an objective for doing formal reconditioning exercises that develop the necessary muscle tone, strength, and range of motion. These activities are normal, useful exercises that the patient will continue after he is no longer being supervised by a therapist and the psychological value of being able to perform self-care activities becomes more evident as the patient becomes more and more independent.

When the patient needs self-help devices, we often call on the occupational therapists to either have the patient make his own devices or to get these simple devices made by other patients. An example of devices that can be used by a patient who is unable to flex his knees, thighs, and back enough to put on shoes and socks are as follows: Using a stick with a hook on one end and small loops sewn onto the tops of his socks (the patient uses the stick as an extension of his arm and hand and is able to pull his socks onto his feet.) Using a shoe horn with an extended handle and using loafers, gore oxfords or shoes with elastic shoelaces, the patient is able to step into his shoes and get them onto his feet.

If a wheelchair is needed, the patient is shown techniques of going from bed to wheelchair and return, wheelchair to toilet and return, and wheelchair to bathtub and return so that involved joints are subjected to a minimum of strain and discomfort.

When the patient is permitted weight bearing and ambulation training is prescribed by the physiatrist, the corrective therapist may have to instruct the patient in crutch walking techniques. A three-point gait is used when the patient needs to favor one leg; a four-point gait is used to reduce weight bearing on both legs; and a two-point gait is used to provide some relief from weight bearing but where crutches are needed mainly for stability. Other patients are shown cane walking techniques or given gait training according to their needs. Necessary and important skills for the patient's daily ambulation such as techniques for using crutches or canes in ascending and descending stairs, ramps and curbs, techniques for getting into and out of all types of chairs, and techniques for getting up from the floor in case of a fall complete the patient's training in ambulation and complete his benefits from treatment in corrective therapy.

VA NAMES RESEARCH COMMITTEE

Appointment of an Advisory committee or Research to counsel the Chief Medical Director concerning research programs conducted within Veterans Administration was announced today by Dr. William S. Middleton, Chief Medical Director.

The committee is composed of representatives of specialists in internal medicine, surgery, neuropsychiatry, and tuberculosis. The chairman is Dr. Joseph M. Hayman, Dean of Tufts College Medical School in Boston.

The four members are:

Dr. J. Burns Amberson, consultant to the Chest Service of Bellevue Hospital in New York City.

Dr. Carol A. Moyer, Professor of Surgery at the Washington University School of Medicine in St. Louis.

Dr. W. Reece Berryhill, Dean of the University of North Carilina School of Medicine at Chapel Hill; and

Dr. Harold G. Wolff, Associate Professor of Psychiatry at Cornell University Medical College in New York City.

Dr. Middleton said the specific aims of the committee are to assist in developing and maintaining desirable research programs within VA. He said these aims are to be achieved through periodic review of the objectives, plans and activities of the research program and through an evaluation of research activities, including their administration and accomplishments.

The committee may advise the Chief Medical Director and the Assistant Chief Medical Director for Research and Education through recommendations regarding their research activities, including their planning and conduct. It also will report such findings and recommendatios as it deems desirable to the Special Medical Advisory Group.

Dr. Middleton said the committee will be concerned particularly with the professional and administrative aspects of the research activities conducted within VA stations and with the research activities conducted by VA employes, and also to their interpretation to the lay public as well as to individuals with professional, scientific, and technical interests.

This committee will maintain contact with the Committee on Veterans Medical Problems of the National Research Council which has advised VA on matters of research since it was established in 1945, Dr. Middleton said.

"From Other Journals"

KARL SCHUTZ, "Muscular Exercise in the Treatment of Bronchial Asthma," *New York State Journal of Medicine*, 55:635-643, March 1, 1955.

For breathing therapy, heel raises, abdominal breathing exercises and seated "sucking" inspiration is taught. The expiratory phase should always be stressed. Diaphragmatic respiration should be employed and elevation of the upper thorax discouraged. "Whistling exhalation" may be combined with strenuous activity, such as running. Teaching of muscular relaxation is advisable with tense patients. Simple calisthenics can be used. They must be individually adapted and gradually increased in intensity. A great part of the therapeutic effect of muscular exercise may be due to stimulation of the adrenal cortex. This means an increased production of the damage-combating cortisone within the body. A biologic need for a minimum of such effects has to be assumed. A life not fulfilling this need apparently leads to a lack of resistance to stress.

PJR

SUSANNE HIRT, "What is Kinesiology. A Historical Review," *Physical Therapy Review*, 35:419-426, August, 1955.

Kinesiology is "the scientific study of human motion." Aristotle (384-322 B.C.) wrote a treatise on "Parts of animals, and progression of animals," which may entitle him to be called "the father of kinesiology." Galen (131-201 A.D.) wrote an essay on "The movement of muscles," which introduced such terms as agonists and antogonists, tonus, synarthrosis, diarthrosis, etc. Da Vinci (1452-1519) was the first "modern" dissector of the human body. Vesalius' (1514-1564) book **The Fabric of the Human Body** was the foundation of modern antomy. Only relatively minor changes and additions have been made since. Galileo (1564-1642) was the first to give a mathematical expression to mechanical events. Borelli (1608-1679) adapted these formulae to the events of the animal body and is considered the father of modern kinesiology and biomechanics. Galvani's (1737-1798) discoveries in electrophysiology made possible Haller's (1708-1777) development of the doctrine of irritability and excitability of muscle tissue. Andry (1658-1742) was one of the first to grasp the role of the muscles as body builders. Ling (1776-1839) was the first to introduce anatomy and physiology into physical education. The Weber brothers (1795-1875) made extensive studies of the dynamics of muscles and the mechanics of locomotion. Braune and Fischer published important studies on locomotion and the center of gravity. Duchenne's (1806-1875) classic **Physiology of Movements** described the action of practically every important superficial muscle of the body.

PJR

S. P. BARNARD, "Prevention of Statis in Trauma of the Ankle Joint," *British Medical Journal*, 4929:1532-1533, June 25, 1955.

The most common immediate treatment for incomplete tears of the fibular collateral ligaments is application of a co'd compress, with or without strapping. It is difficult not to get strapping either too tight to bear or too loose to be serviceable in preventing oedema. Oedema considerably retards healing. Use of a latex sponge rubber pad incorporated inside an elastic adhesive strapping is useful. Generally a large area of ecchymosis is present when the strapping is removed, but no oedema is apparent. The support can usually be dispensed with in 9 to 12 days. Generally the patient is then able to perform all but the most strenuous activities.

PJR

W. F. FLOYD and P. H. S. SILVER, "The Function of the Erectores Spinae Muscles in Certain Movements and Postures in Man," *Journal of Physiology*, 129:184-203, 28 July, 1955.

The action of the erectores spinae muscles in the lumbar region was studied electromyographically in 150 subjects. Most subjects showed a low level of activity while standing. When told to bend backword there was a short burst of activity in the erectores spinae, after which extension was continued by gravity under the control of the rectus abdominis. Flexion from the position of extension was gained by reversing these actions. Lateral flexion resulted in activity of the contralateral erector spinae only. In straining, coughing, singing and other activities in which the intra-abdominal pressure is raised and a forcible expiration made, the erectores spinae, external obliques and recti abdominis display action. In full trunk flexion, the erectores spinae relax when the trunk reaches full flexion and the trunk is supported by the intervertebral ligaments. This probably accounts for the frequent injuries to the back, such as rupture of the annulus fibrosus which occur when the trunk is flexed. The initial lifting movement is brought about by an extension of the hip joints, followed by vigorous activity of the erectores spinae.

PJR

C. B. WYNN PARRY, "Shoulder Abduction with Deltoid Paralysis," *Annals of Physical Medicine*, II:178-179, January, 1955.

Electromyography reveals that during normal abduction the biceps, triceps and infraspinatus muscles are active as well as the deltoid. Patients with complete paralysis of the deltoid can be taught to gain full abduction and elevation of the shoulder by utilizing the long head of the biceps as the anterior fibers of the deltoid and the long head of the triceps as the posterior fibers. A full range of passive movement in the shoulder-joint is the first essential. Stretching and resisted exercises may be prescribed. The patient first learns to raise his arm while lying supine. He then practices while sitting on a chair in front of a mirror. External and internal rotation are p r a c t i c e d successively.

PJR

H. F. V. RIDDLE and ROBERT ROAF, "Muscle Imbalance in the Causation of Socoliosis," *The Lancet*, 6877:-1245-1247, June 18, 1955.

Future progress in the prevention and treatment of deformities will largely depend on increasing our knowledge of the aetiology. An electromyographic study was undertaken to assess the role of muscle imbalance in scoliosis. In 16 of 19 idiopathic curves the muscles on the concave side were significantly weaker than normal. Perhaps the most likely cause is an unrecognized attack of poliomyelitis. Since unopposed action of the longitudinal muscles would tend to cause a curvature concave on the stronger side, it is suggested that it is imbalance of the deep rotator and transverse muscles that is the main factor in producting deformity, and that the first stage in such cases is a rotation deformity due to unopposed action of the deep spinal muscles.

PJR

A. W. SLOAN and K. D. ALLARDYCE, "The Effect of Exercise and of Changes in Posture on the Blood Platelet Count in Man," *Quarterly Journal of Experimental Psysiology and Cognate Medical Sciences*, 40:161-167, April, 1955.

Blood platelet counts were made on 13 healthy male subjects before exercise and following work on a hand ergometer. The platelet count fell significantly immediately after exercise. Since there was no corresponding fall in erythrocyte and leucocyte counts, this change was probably due to redistribution of the platelets in the circulation. In clinical practice it would be advisable to take platelet counts under standardized conditions of rest and posture.

PJR

ALFRED SOFFER, "Dangers of Inactivity During Automobile Travel," *The American Journal of the Medical Sciences*, 229:475-476, May, 1955.

A number of instances of thrombosis of the deep leg veins due to long automobile rides have been reported. The role that the impedence to venous flow resulting from the bent knee position of automobile posture plays is yet to be determined. Travelers with lower extremity abnormalities should wear leg bindings during long trips. Of paramount importance is the necessity to get out of the car every few hours to walk about. Passengers should move their legs frequently while riding. In older age groups the earliest appearance of edema is a warning that exercise periods are not frequent enough. If walking, leg bindings and massage do not prevent edema or aching, the trip must be interrupted to permit bed rest in the Trendelenburg position.

PJR

CHARLES W. SIMON and WILLIAM H. EMMONS, "Learning During Sleep?" *Psychological Bulletin*, 52:328-341, July, 1955.

Commercial firms sell recording devices which they claim allow the individual to learn while he sleeps. A V.A. Hospital doctor has reported successful use of sleep-training as a supplement to waking-training in a mental health program. Unfortunately, most such incidents have been too inadequately controlled to judge their effectiveness. A total of ten studies describing research on sleep-learning have been collected and subjected to critical evaluation. It is highly speculative whether any of them presented acceptable evidence that learning during **sleep** is possible. It may take place during a waking state wherein subjects apparently do not remember later on whether they were awake.

PJR

"Foul Ball!" *Journal of the Iowa State Medical Society*, XLV:429-430, August, 1955.

Little League baseball puts little boys under considerable pressure to work—rather than play—several hours a day at skills for which, in most cases, their stage of development does not equip them. The idea that the Little Leagues prevent juvenile delinquency is only a rationalization. These leagues interfere with the childrens' nutrition and home life. School officials have permitted an althogether disproportionate emphasis on competitive athletics. This interferes with academic work and with home duties and often turns childrens' heads. Children should be treated as children until they have attained emotional, intellectual and physical maturity, together with an education and moral training.

PJR

LAURANCE W. KINSELL, "Hormones, Growth and Senescence," *Journal of the American Geriatrics Society*, III:31-35, January, 1955.

Roughly twenty years of the average lifetime are spent in positive growth, or anabolism, an equal period in the maintenance of a plateau, and the remaining years in a state of negative growth, or catabolism. In the early years growth acceleration appears to be largely under the control of the growth hormone derived from the anterior pituitary. The growth spurt occurring during and following puberty is under the control of the steriod hormones derived from the gonads and the adrenal cortex. Thyroid hormone and insulin appear to have an accessory effect. In excessive amounts the cortisone-like steroids derived from the adrenal cortex and the thyroid hormone may have anti-growth effects. Neither the addition nor the withholding of these substances enhance the longevity of the n o r m a l individual.

PJR

LOUIS SOKOLOFF et al., "The Effect of Mental Arithmetic on Cerebral Circulation and Metabolism," *Journal of Clinical Investigation*, XXXIV:1101-1108, July, 1955.

Studies of the effect of concentrated mental effort on cerebral circulation and metabolism were performed on 13 male university students. No changes in cerebral blood flow, cerebral oxygen consumption, cerebral vascular resistance and cerebral RQ were observed, although there was a shift in the EMG pattern to higher frequency, lower voltage rhythms. It is not apparent what the nature of "mental work" may be in the physical sense. If no work or energy transformation is involved, the energy derived by the brain from the utilization of oxygen may serve only to maintain its structural and functional activity. Mental activity may be reduced or increased without any change in cerebral oxygen utilization. On the other hand, biochemical changes associated with mental activity may alter the efficiency with which that energy is transformed to a useful form. In this way considerable variations could be achieved without altering the total energy supply. Mental activity or sleep may be accompanied by a redistribution in the patterns of activity throughout the brain. Areas with increased activity could be counter-balanced by areas of reduced activity so that the total cerebral oxygen consumption is unchanged.

PJR

D. B. ALLBROOK, "Muscle Imbalance in Scoliosis," *Lancet*, 6882:196, July 23, 1955.

The sacrospinalis group (iliocostalis, longissimus and spinalis are extensors (and in the case of the iliocostalis week lateral flexors) of the vertebral column. The deeper muscles (semispinalis, multifidus and rotators) are directed medially, posteriorly and cephalad. They are important rotators and when those of one side are paretic, the muscles of the opposite side, by virtue of their attachments, rotate the vertebrae into a scoliotic position.

PJR

E. J. M. CAMPBELL, "The Role of the Scalene and Sternomastoic Muscles in Breathing in Normal Subjects. An Electromyographic Study." *Journal of Anatomy*, 89:378-386, July, 1955.

The action of the sternomastoid and scaleni msucles was studied electromyographically in five male subjects. The three scaleni appear to have the same fundamental actions. In some subjects they were active during quiet breathing. Considerable activity was found during moderately severe voluntary expiratory efforts. Activity of the sternomastoid became important only during very deep breathing.

PJR

ADRIAN D. BAER et al., "Effect of Various Exercise Programs on Isometric Tension, Endurance and Reaction Time in the Human," *Archives of Physical Medicine and Rehabilitation*, 36:495-502, August, 1955.

Sixty-three subjects were subjected to various isotonic and isometric exercise regimens. There was no significant difference between the resulting marked increases in work capacity, although the heavy resistance isotonic program gave the greatest increase. Although an increase in reaction time followed the heavy resistance isotonic exercise, it was felt there was insufficient evidence to attribute this change to the exercise. Maximal increase in isometric tension resulted from isometric exercises at a slow rate, although heavy resistance isotonic exercise produced almost the same increase. There was no correlation between improvement in one function and improvement in another.

PJR

MICHAEL KELLY, "Constriction Pain in Muscle," *Neurology*, 5:178-181, March, 1955.

If muscles are exercised while their blood supply is arrested, they become painful. Pain can be produced without any muscular effort when the ischemic arm is put in hot water for five minutes. Cold water delays the onset of pain. Heat lowers cutaneous pain thresholds by rendering receptors more sensitive. In nerve injuries partially innervated muscles are prone to fatigue and to painful cramp. They have to be carefully protected from excessive work Muscular fatigue is a subthreshold condition analogous to hyperalgesia; it becomes pain when it is intensified by partially blocking the nerve supply.

PJR

E. J. M. CAMPBELL, "An Electromyographic Examination of the Role of the Intercostal Muscles in Breathing in Man," *Journal of Physiology*, 129:12-26, 28 July, 1955.

The intercostal muscles were examined electroyographically in healthy young men, in women after radical mastectomy and in dysponeic patients. During quiet breathing the intercostals contract only during inspiration. It seems unlikely that they have only expiratory function during involuntary breathing, but they probably contract strongly during voluntary expiratory efforts and such activities as coughing. The study provided no evidence to support distinctions between the actions of the external and internal intercostals.

PJR

Editorials

THE FUTURE OF CORRECTIVE THERAPY

Alan Gregg reminds us that those who are disosed to forget history must prepare themselves to accept its repetition. The historian becomes a statesman when he unfolds the past not only as factual pages of information but as a guide and perspective for the future. Even at the risk of repeating what is already known, it would therefore be appropriate to attempt a sort of overview of the discipline of corrective therapy in the shadow of the past and in the light of its present development. From such a long horizon one may be rewarded by a more complete perspective of the future.

Emerging in the reconditioning programs of World War II, specially oriented physical educators began to work with the sick, injured and disabled carrying out medical prescriptions for exercise. Stimulated by the almost evangelistic fervor of Howard Rusk, a group of dedicated physical educators began to experience the satisfaction of mind and spirit which came to them as they saw the effect of medically prescribed exercises and activities accelerating the processes of physical and spiritual restoration. They soon found that they were dealing with far more than muscles and bones. These workers designated by Rusk as "the cream of the crop" began an engagement in the challenging areas of service to their fellow beings, leading them into many new and strange areas of definitive treatment and rehabilitation.

The physicians directing these therapists, visualizing the therapeutic potentials of these new areas, began to demand more of the corrective therapists in terms of professional preparation and scope of activity. The Veterans Administration quick to accept this challenge and opportunity for improved medical service to the veteran, set up special training courses with leading universities and provided excellent clinical training in their hospitals so as to provide most comprehensive professional preparation for those engaging in this new field.

This specialized intensive training laid the basis for the continued advancement of this discipline as a part of the total rehabilitation team treating the total individual. By a most natural evolution the professional areas of the corrective therapist have been extended until the therapist treats just about every medical, neurological, psychiatric and tuberculosis patient type for which exercise as an integral part of the total treatment is indicated. Corrective therapists, as is well known, are now working in governmental, state and private hospitals and clinics, throughout this country. Remedial gymnasts in England and Canada and our confreres in many other countries throughout the medical world are extending the confines of corrective therapy rationale and method.

From this short glimpse of the past and present it is evident that the discipline of corrective therapy represents far more than the mechanics of exercise. Its short history reveals the evolution and development of an idea which has grown into an idealogy. To conceptualize this idea, one might say that physical and psychological activity have become a most important, integral art of modern medical practice. Along with humanitarian progress, the treatment of the sick is now regarded as a sacred privilege and accepted as a social responsibility. Corrective therapy cannot fail to become an important part of this onward progress of society.

The future of corrective therapy is in our own hands. The basic ideas and ideals underlying this discipline are sound and satisfy a great and increasing need in our modern civilization. Our future de-

pends on just how much in terms of refinement of techniques, hard work, faith and cooperation we as individuals and as an organization are willing to contribute. New drugs in psychiatric, neurological and tuberculosis treatment provide new bases for corrective therapy effectiveness in a total dynamic treatment approach which is dramatically changing the picture of so-called chronic illness and opening the door to rehabilitation for patients heretofore considered hopeless. The vast resources of clinical material in The Veterans Administration available to the corrective therapist for treatment, rehabilitation and for purposes of study is unequalled in the medical world today. The fine support and direction of the Veterans Administration and other agencies and private clinics assures the continued professional progress of corrective therapy. The leadership of Doctors Covalt, and Dawson in the early days of this discipline has naturally emerged in the dynamic leadership of Dr. Knudson at the present time. We are reminded that there is no field of endeavor in which there has been such dramatic changes over the last twenty-five years as in the field of rehabilitation. Corrective therapy has a great opportunity to become a continuing part of this progressive growth.

John Eisele Davis, Sc.D.

Book Reviews

"Symposium on Fatigue," Edited by W. F. Floyd and A. T. Welford. (London: H. K. Lewis & Co. Ltd., 1953. Distributed in the U. S. by John De Graff, Inc., New York 10, N. Y. 196 pp. $4.00)

One of the most difficult problems confronting the corrective therapist is that of the patient who is chronically fatigued. This report of a Symposium on Fatigue held by the Ergonomics Research Society in 1952 at Cranfield, England, makes one thing clear: part of the difficulty, at least, is due to the fact that the term "fatigue" covers several different entities, few of them definitely delimited. The authorities who addressed this Symposium spoke of psychological fatigue, tropical fatigue, physiological fatigue, visual fatigue, etc., and even raised the point of whether fatigue is fact or fiction! Corrective therapists will probably find Darcus' chapter on "Some Effects of Prolonged Muscular Exertion" and Hemingway's "The Physiological Background of Fatigue" of the greatest interest. No easy answers are provided in the text, but if reading it does nothing but introduce the therapist to the perplexing physiological, psychological and semantic problems involved in the use of this term, it will be time well spent. This is probably the most useful of the books on the subject since the Bartley and Chute text was published in 1947. It is recommended reading.

PJR

The Josiah Macy, Jr. Foundation, 1930-1955. New York, 1955. 174 pp.

During recent years several Macy publications have been reviewed in this *Journal*. The present book is a description of the Foundation's activities over its first twenty-five year period. The record is an impressive one. Kate Macy Ladd's endowment was designed to promote human welfare by assisting in scietific medicine and improved health care. The description of the investigations supported by the Foundation and the results achieved by such research suggests that the funds have been spent wisely and in highly varied ways. This *Journal* congratulates the Macy Foundation on its work to date and looks forward to its reports in future years.

PJR

"Cold Injury," M. Irene Ferrer, editor. (New York: Josiah Macy, Jr. Foundation, 1955. 226 pp. $4.50).

Transactions of the Josiah Macy, Jr. Foundation almost invariably prove fascinating to read but difficult to review. This report of the Third Conference on cold injury, held appropriately enough at Fort Churchill, Canada, during February, 1954, is no exception to either rule. Perhaps the best that can be done is to give an idea of its contents. Carlson conducted a session on the circulatory and metabolic changes that take place upon acclimatization to cold. Brown led a meeting which discussed metabolic studies of the Eskimo. Coffey reported on physiological differences between the natives and acclimatized whites. Page dealt with two separate ideas in his conference on fat distribution and respiratory quotient. "Diet and Survival" was the topic of Stevenson, and the roles of ascorbic acid and subcutaneous fat in the prevention of cold injury were reviewed by LeBlanc. The general pattern is that the man named made a short presentation of research on the subject and the meeting then became a discussion group, with the conferees' remarks being presented verbatim. Short bibliographies are appended to each chapter. The discussions were remarkably free from technical jargon and this is the easiest to read of any of the conference reports yet seen by this reviewer. Probably the overall impression left with the reader—and this is no doubt as the authors would wish—is that there is a tremendous need for further studies in the field. The report is highly recommended to anyone having interest in this subject.

PJR

"Of Publishing Scientific Papers," by George E. Burch. (New York: Grune & Stratton, 1954. 40 pp. $2.75) Paper, plastic binding.

This is the Presidential Address delivered to the Central Society for Clinical Research in 1953. Dr. Burch briefly considers the functions and responsibilities of the author, reader, administrator, editor, publisher and newspaper in reporting of scientific papers. Approximately half the pages are devoted to cartoons. The booklet contains a good deal of constructive criticism. It is recommended reading for anyone connected with any phase of publishing research studies.

PJR

Artificial Limbs. Washington 25, D. C.: National Academy of Sciences.

This is a publication put out in January, May and September of each year by the Advisory Committee on Artificial Limbs, and is a magazine rather than a book. While it is no doubt well known in its field, it is noticed here to bring it to the attention of those who, like the reviewer, are unfamiliar with it. The contents of the issue at hand (May, 1955) deal with the social significance of the hand, its mechanics, problems of amputees and the principles of artificial hand design and construction. It will appeal to all who found Klopsteg and Wilson's **Human *Limbs and Their Substitutes***, reviewed this month, of interest.

PJR

Symposium on Human Factors in Equipment Design," Edited by W. F. Floyd and A. T. Welford. (London: H. K. Lewis & Co., 1954. Distributed in the U. S. by John De Graff, Inc., New York 10, N. Y. 132 pp. $4.00)

This is Volume II of the Proceedings of the Ergonomics Research Society, a British organization devoted to the study of the relations between man and his working environment. The two Symposia which have been held by this society have produced very interesting reports. Readers of this **Journal** will no doubt find it profitable to watch for further publications under their auspices. As the title of the present volume indicates, its contents generally fall somewhat outside of the field of rehabilitation. However, the chapters on "The Anatomy of Work," "The Range and Strength of Joint Movement," and "Experimental Studies of Physical Working Capacity in Relation to Sex and Age" will be found to contain much of interest to those engaged in physical medicine. Individuals charged with the design of equipment to be used by handicapped individuals will certainly profit by giving consideration to the principles which are set forth in some of the other discussions. Reading the book causes one to wonder why the human race displays such a steady resistance to the use of properly designed equipment; perhaps it would be beneficial to consider whether we are exhibiting similar behavior in other fields as well.

PJR

"Treatment and Prevention of Athletic Injuries," by Joseph D. Dolan. (Danville: The Interstate Printers and Publishers, 1955, 394 pp.)

This is the first text on athletic training written specifically for use in physical education classes that has come to the attention of the reviewer. No originality is claimed for the treatments suggested. The author generally gives the single treatment that he has found most satisfactory rather than citing a number of ways and forcing the inexperienced trainer to make a choice. He expresses the opinion that "the analgesic pack is the backbone of athletic injury treatment." In some instances, particularly "Charley Horse," the discussion could have been profitably extended. The subject of pre-season conditioning is scarcely touched upon. The chapter on "The Head and Face" lacks information necessary for treating the facial cuts characteristic of boxing. Several improvemnets could be made in the format. References are included in the body of the text and the method of citation is not uniform. Some of the illustrations are apparently not referred to in the text; in several cases a more detailed explanation of the illustrations would be helpful. A much longer bibliography would be desirable in a book designed for students. Surely it is an error to refer to DeLorme's exercises as "passive resistance," and one wonder what a page on the "History of Epilepsy" adds to a book on athletic injuries. The book does contain much information; a careful revision for a second edition could make it one of the best on the market.

PJR

"My Left Foot," by Christy Brown, (New York: Simon and Schuster, 1955. 178 pp. $3.00).

The author, a victim of cerebral palsy relates with humor and courage, but never self-pity, the surprisingly normal course of his life to date.

One of 22 children, his recounting of his experiences within the scope of his family account for much of the book's warmth and vitality. The author's acceptance of his disability as a challenge rather than a defeat should serve as an inspiration to those similarly afflicted.

The use of his left foot as a means of communication as well as a substitute for a hand in executing creditable paintings contributes to the sparkling interest of the book.

Christy Brown has managed to combine material in an informative, yet never dull, fashion that may be considered a contribution to medical literature as well as a warm human chronicle aptly told.

I.F.

"Human Limbs and Their Substitutes," by Paul E. Klopsteg and Philip D. Wilson, et al. (New York: McGraw-Hill Book Company, Inc., 1954. 944 pp. $12.00).

Prepared under the sponsorship of the Advisory Committee on Artificial Limbs, National Academy of Sciences, National Research Council, the avowed purpose of this book is to present "results of engineering and medical studies of the human extremities and application of the data to the design and fitting of artificial limbs and to the care and training of amputees." The book is divided into four main parts: Medical Problems of the Amputee, The Upper Limb and Its Substitutes, The Lower Limb and Its Substitutes, and Training and Evaluation. Each chapter is written by an expert in his field—Chapter 23 being coauthored by Hyman Jampol, formerly a corrective therapist at the V. A. Neuropsychiatric Hospital, Los Angeles—and is followed by a bibliography. The text is profusely illustrated. There are occasional stretches in which the average reader will find the mathematics heavy going, and from the standpoint of the therapist the chapters on prosthetic use training could have been profitably enlarged. The book is not designed to cover the problems of functional amputee training, but as far as the engineering aspects of human extremities and the application of this data to the design and fitting of artificial limbs are concerned, it is the definitive text. It is a "must" for the reference library of very hospital and should be available in the library of every Corrective Therapy or Physical Therapy department dealing with amputees.

PJR

"The Practice of Dynamic Psychiatry", by Jules H. Masserman, M.D. (W. B. Saunders Company, Philadelphia & London. 1955; 790 pp. $12.00)

Clear, practical and concise, Masserman's **Practice of Dynamic Psychiatry** is in reality five books in one. In this large volume are integrated sections on clinical investigation of human behavior, dynamic evaluation of clinical syndromes, case studies and communications, clinic dynamics of affect and self, and the largest of the sections—the practice of dynamic psychotherapy. Presentation of material is so arranged that theory and techniques of application are intimately interwoven, which is of definite value to the reader using this volume either as a text or reference. Almost encyclopedic in its coverage of dynamic psychiatry, the volume includes material on case reporting techniques of psychiatric conditions to consulting and referring agencies, how to arrange the psychiatric office, etc. Appendices cover outlines, standard nomenclature of mental disease, training of the psychiatrist and mental hygiene. Bibliography and index of personal names as well as subjects complete this unusual and first to the reviewer's knowledge, complete coverage of the field of dynamic psychiatry.

This volume will be of unusual value to the psychiatrist and all allied disciplines as a reference, text or "just plain interesting reading." Stimulating as well as factual, Jules Masserman should receive well deserved commendation for his energy in the task of intelligently compiling, interperting and vitalizing an otherwise dull and confused mass of material as reflected in other volumes partially covering similar subject matter. Here then is a library investment for the mature individual who in the past has been unable to understand the semantic confusion of so-called books on unconscious motivation. In addition, this book is a working manual of techniques for the psychiatric resident and the practicing psychiatrist.

DCL

"Religion and Human Behavior," by Simon Doniger. (New York: Association Press, 1954. 233 pp. $3.00).

Dr. Doniger has combined the writings of fourteen leaders in psychiatry and pastoral psychology to formulate his new book. Each author, in his writing, expresses his feelings as to the relationship between religion and psychiatry and the role of each field in counseling and therapy. Some of the writers express their position with good, sound logical reasoning; others delve into the intangible spiritula aspects

of the outer realms of mankind. This book may be especially interesting to those members of the two named professions who have questionable doubts as to the relationship between these two fields. The book may also be of interest but of little value to the rehabilitation therapist.

HJB

"The Medical Significance of Anxiety", by R. L. Jenkins, M.D. (The Biological Sciences Foundation, Wsahington 7, D. C., 1955; 46 pp. $1.00)

This is a brief, clearly written treatise on anxiety for the general practitioner, incorporating three sections:

1 — The need for control of anxiety.
2 — Control of anxiety in medical practice.
3 — Nature of anxiety.

The third section provides an excellent working hypothesis of the neurophysiological changes occurring in the body as precipitated by anxiety stimulus, although Dr. Jenkins, in the opinion of this reviewer, may oversimplify the problem of anxiety at times.

This brief presentation should provide an excellent basic introduction to the subject and be of particular value to the practicing physician. Foot notes are adequate and bibliography well selected.

DCL

Chapter Activities

SOUTHEASTERN CHAPTER

The sixth annual clinical and scientific conference of the Southeastern Chapter opened Thursday evening October 20 with an excellent banquet at the Red Barn, two miles south of Lake City, Florida. Dr. John E. Davis was the speaker and gave a very dynamic talk on "Gerontology, The Problems of Rehabilitation."

The clinical sessions opened Friday morning with Mr. Chester J. Nadolski of Bay Pines, Florida presiding. Dr. T. L. Harvey, Chief of Professional Services at Lake City VAH extended the welcome and Dr. W. J. Wilson, Chief of PMR at the same hospital, made the opening remarks. Mr. William A. Clark of Tuskegee, Ala. responded at President of the Southeastern Chapter. Dr. Davis then introduced Dr. George Harrell, Dean of the College of Medicine at the University of Florida, who gave the keynote adress, "Chronic Iliness as a Public Health Problem."

A panel discussion with the theme "Rehabilitation of the Chronically Ill Patient" followed with Dr. C. D. Dawson of Jackson, Miss. as moderator. Excellent papers on the subject were presented by Dr. F. F. Schwartz of Birmingham, Ala., Dr. Charles Stansky of Bay Pines, Fla., and Dr. Samuel P. Nixon of Bay Pines, Fla.

Mr. Edwin D. Jones of Tuskegee, Ala. read an interesting paper on the home management of the chronically ill patient, and Mr. Paul Roland of Chillicothe, Ohio closed the morning session by reporting on his research work with catatonic patients.

The afternoon session opened with Mr. William G. Redden of Lake City, Fla. presiding. He introduced Mr. Paul Andrews, State Director of Vocational Rehabilitation from Talahassee, Fla., who spoke on the effects of Public Law 565. The meeting closed with a panel discussion on the team concept of the rehabilitation of the chronic patient with numerous members of the Lake City VAH staff participating.

On Saturday morning October 22, nearly all of the conferrees and guests journeyed sixty miles farther south to the winter home of Dr. and Mrs. John E. Davis for a day of hospitality and recreation. A delightful barbecue picnic was enjoyed by all. In the business meeting that followed, Mr. Lester Burrowes of Jackson, Miss. was elected and installed as the new president. Mr. James Field of Durham, N. C. and Mr. William G. Redden of Lake City, Fla. were named the new vice presidents, and Mr Willis P. Denny of Dublin, Ga. was elected secretary-treasurer. Jackson, Miss. was chosen as the site of next year's meeting.

National President Frank S. Deyoe was in attendance and presented a gift to Dr. John E. Davis in behalf of the association.

SHW

OHIO-KENTUCKY CHAPTER

The Ohio-Kentucky Chapter of the Association for Physical and Mental Rehabilitation held its fall meeting in joint sessions with the Ohio Valley Chapter of the American Association of Rehabilitation Therapists on October 22, 1955 at Ohio State University in Columbus, Ohio.

Morning and afternoon sessions were devoted to clinical topics which were followed by business meetings of each chapter. Dr. William F. Ashe, Professor and Chairman, Preventive Medicine, Ohio State University Medical School, gave the welcome address, defined rehabilitation and discussed some of the aspects of rehabilitation in relation to education.

His address was followed by a panel discussion on "Rehabilitation—An Educational Challenge". The program was moderated by Robert Albrecht, Ph.D., Clinical Psychologist, Veterans Administration Hospital, Chillicothe, Ohio. The participants included Richard Burke, M.D., Chief Medical Director, Rehabilitation Center, OSU Hospital; States D. McCoy, Chief, Acutely Disturbed Service, VAH, Chillicothe, Ohio; Dorothea Smith, Ph.D., Associate Professor, Psychology and Social Administrator and Coordinator, Rehabilitation Counseling Service, OSU; and Arthur S. Daniels, Ph.D., Professor, Health and Physical Education, OSU.

In the afternoon session Dr. I. Muss, Chief, PM&R, VAH, Louisville, Kentucky spoke on "Rehabilitation of the Aged". He discussed several of the unanswered and often controversial problems that occur in geriatrics.

At the Chapter business meeting the membership was presented the Chapter Charter by out-going President Earl Mason. Mr. George Jurcisin assumed the duties of the presidency. Mr. Robert Kohler was elected unanimously to the office of President-Elect. James Strausbaugh was appointed as Membership Chairman, Raymond Yates was appointed Director of Publications and Richard Hannan, Michael Riley and Mark Howett were appointed to the Constitution Committee. Outgoing president Earl Mason assumed the duties of Secretary to the Advisory Board with Dr. Leo Rosenberg accepting the appointment of Advisory Board Chairman.

JBM

Annual A. P. M. R.

MEMBERSHIP DRIVE

Begins

JAN. 1

Plan Now To Do Your Part!

CORRECTION

Footnote 4 appearing on p. 159, Vol. 9, No. 5 in the article, "A Study of Cross Transfer of Muscular Strength and Endurance Resulting From Progressive Resistive Exercise Following Injury" by Karl K. Klein is incorrectly referenced. The footnote should read: ZINOVIEFF, Heavy Resistive Exercise, The Oxford Technique, *The British Journal of Physical Medicine*, 14:129-132, June, 1951.

News and Comments

NEW VA PROGRAM FOR LONG-TERM PATIENTS

Long-term veteran patients, some hospitalized 20 years or more, will be concentrated in special sections of Veterans Administration hospitals for a new program of "all-out" specialized treatment to promote their recovery or to prevent further loss of body and mind functions.

Termed an advanced concept in the care of chronically ill veterans, the intermediate program, as it is known, is underway in 30 VA hospitals and will be expanded to others as rapidly as they qualify, Dr. William S. Middleton, Chief Medical Director, said.

Dr. Middleton explained that the functions of the program is to provide active rather than custodial care for those long-term patients in the VA hospital system who no longer need definitive hospital treatment, cannot return home, and lack the capabilities necessary for the new planned-living program in VA domiciliaries.

Specially qualified staffs interested in the care of such patients are required to man these sections, Dr. Middleton said. In addition, the entire hospital staff will be available for consultation or for specialized treatment.

For each long-term patient in the section, a planned maintenance rehabilitation program will be instituted immediately to retain the benefits of hospital care already given and to prevent the development of disabilities resulting from physical inactivity, Dr. Middleton said.

Moreover, he added, the section staff will gear a planned activity program to each patient's capacity and need for recreational, spiritual and social activities to prevent mental regression and social isolation.

Dr. Middleton said periodic reviews will be made of each patient's rehabilitation progress with the objective of planning for his discharge when that is indicated.

The program first underwent extensive tests in five combination hospital and domiciliary centers. When these tests proved successful, the program was expanded to the 30 hospitals now using it.

Dr. Middleton recently instructed all VA hospitals to consider the establishment of the intermediate program, based on patient need and other requirements.

Dr. Middleton said much still must be done to develop detailed procedures of operation for the intermediate sections on a nation-wide basis. He expects refinements and improvements to develop from further experience in caring for the chronically ill patients under this concept.

A study recently completed indicates that 4,282 long-term patients in VA hospitals already meet the criteria for admission to these specialized sections in general medical and surgical hospitals and that 3,917 domiciliary members also are eligible and would be benefitted by the increased medical care afforded in such sections.

Dr. Middleton said the problem of caring for the aging and chronically ill patients in VA hospitals has been under special study for several years. The current program has resulted from these studies and experiences.

The need to develop suitable long-range plans to cope with this problem is inherent in the present veteran population of 22,000,000, according to Dr. Middleton, since a considerable number will eventually require long-term hospital care. He said 584,000 veterans now are 65 years of age, but only five years hence the number is expected to exceed 1,780,000.

The average age of the 110,000 veterans in VA hospitals is 48, in comparison with the average of 38 years for the veteran population as a whole. Approximately 10,000 VA patients are over 65.

Also to be considered in relation to the problem of aging veterans is the chronicity of disease and its effect on length of hospital stay, Dr. Middleton said. He explained that approximately 34,000 of VA's current load of 110,000 patients have been hospitalized for more than five years, with some 9,000 of the 34,000 having been hospitalized for 20 years or more.

Because of this existing load, Dr. Middleton said, the intermediate program for the present will be primarily restricted to patients and domiciliary members already in the VA hospital and domiciliary system.

Dr. Middleton said that because the basic function of the intermediate sections is to provide active rather than custodial care for patients who no longer need definite hospital treatment, these specialized sections with improved patient care, directly and indirectly, with a saving in scarce category personnel.

NATIONAL SOCIETY HOLDS CONVENTION

The National Society for Crippled Children and Adults held its annual convention in Chicago from Nov. 28-30. A feature of the program this year was emphasis on employment of the handicapped which was dramatically protrayed by a national exposition of employment, the first exhibit of this kind held outside Washington, D. C.

Featured speakers and panelists at the convention included: Maj. Gen. Melvin J. Maas, USMCR, Ret., chairman of the President's Committee on Employment of the Physically Handicapped; Dr. Leonard A. Scheele, surgeon general of the U. S. Public Health service; Charles Percy, President of Bell and Howell; Edwin A. Locke, Jr., president of the Union Tank Co.; Dr. Clinton Compere, Dr. Harold Boyd, associate professor of orthopedic surgery, Univ. of Tennessee; Dr. Francis J. Braceland, psychiatrist-in-chief, Institute for Living; Mary E. Switzer, director of the U. S. Office of Vocational Rehabilitation and many other leaders in medicine, rehabilitation, industry and education.

GEORGIA MEETING FEATURES DISCUSSION ON BRACES

Challenging problems involved in the restoration of function to individuals with paralysis or amputations will be discussed by leading authorities as part of the 122nd meeting of the American Association for the Advancement of Science in Atlanta, Georgia, during Christmas week, 1955.

At morning and afternoon sessions in the Atlanta Municipal Auditorium on Friday, December 30, new developments in orthopedic braces will be discussed from the medical and engineering viewpoints.

Of particular novelty will be presentations of the little-known economic aspects of the brace and articicial limb industries, according to Dr. Eugene F. Murphy, Chief, Research and Development Division of the Veterans Administration's Prosthetic and Sensory Aids Service, who is organizer of this symposium. Other papers, in discussing social and economic productivity of patients requiring such appliances, will consider the many benefits for the individual and the financial profit as well as the humane values earned by society on investments in rehabilitation.

The morning session will be under the chairmanship of Dr. Thomas P. Goodwyn, Medical Administrative Consultant to the Georgia Division of Vocational Rehabilitaton. Dr. Robert L. Bennett, Medical Director of the Georgia Warm Springs Foundation, will open the meeting with a discussion of the advances made in the bracing of persons with severe arm paralysis. Numerous assistive devices used by such people in performing their daily activities will be demonstrated.

Miss Grace Marie Freymann, Psychologist, Georgia Warm Springs Foundation, will analyze the results of a follow-up study of polio patients, dealing with the economic status attained, family assistance required, employer and family attitudes, and the need for repairs and changes in their devices.

Donald Dabelstein, Assistant Director, Office of Vocational Rehabilitation, Department of Health, Education and Welfare, will present data regarding the economic outcomes of vocational rehabilitation of the orthopedically disabled, summarizing experiences of various state divisions of vocational rehabilitation.

E. B. Whitten, Executive Director of the National Rehabilitation Association, will preside at the afternoon session. It will begin with a discussion of the economic aspects of the artificial limb industry by McCarthy Hanger, Jr., President, J. E. Hanger, St. Louis, Mo., and currently President, Orthopedic Appliance and Limb Manufacturers As-

sociation. Included in Mr. Hanger's talk will be a discussion of the nature of the limbfitting problem, the size and geographical distribution of limb shops and their limited volume, the historical development of the industry and its present methods, its participation in the Government Research program and its progress toward professional status.

A similar discussion of the economics of the bracemaking and fitting industry will be offered by W. Frank Harmon, Atlanta Brace Shop, Atlanta, and First Vice-President, Orthopedic Appliance and Limb Manufacturers Association.

A paper on new developments in bracing will be presented by Dr. Augustus Thorndike, consultant to the Veterans Administration and Chief Surgeon, Department of Hygiene of Harvard University; Dr. Murphy, an engineer in charge of VA's research on prosthetic and sensory aids; and Anthony Staros, Chief of VA's Prosthetic Testing and Development Laboratory. Machine and clinical tests of new plastic bushings to reduce wear will be described as will a novel brace for low back injuries and application of new principles to braces for paralyzed arms.

It is planned to have an exhibit with the theme "Toward Better Bracing" during the entire week of the AAAS meetings. Research activities leading to improvements in design, fabrication, and fitting of braces will be highlighted.

NEW PUMP DEVELOPED BY VA FOR HEART SURGERY

More than 500 successful non-human heart surgery operations have been performed with the aid of a simple pump developed at the Veterans Administration hospital in Nashville, Tenn., with the result that its use on humans now is considered imminent.

Dr. Frank Gollen of the Nashville staff who, with associates developed the pump described as "no bigger than a Tennessee Jigger", offered the scientifically-cautious admission that it may be used for human surgery in the near future.

What this little, inexpensive machine actually does is to by-pass the heart and lungs, and yet maintain circulation of the blood after removing carbon dioxide and supplying new oxygen while heart and lungs are at rest.

That leaves the heart available for surgery. And with the lungs collapsed, there is plenty of room for the surgeon to work.

He may work for an hour repairing otherwise fatal damage, while the heart lies still and bloodless; yet life's essential fluid continues surging through the arteries, fully oxygenated and normal in carbon dioxide, just as nature intended.

Many machines have been devised over the last 25 years to do the same job, but they are large or require complicated electronic devices costing thousands of dollars, and they have to be operated by large teams.

VA's machine can be operated by only one individual while the surgeon operates on the heart. It is small enough to be transported by automobile. And it is of the simplest mechanical form.

The machine is called a pump-oxygenator. Dr. Gollan first experimented with the idea while he was engaged in research with Dr. Leland C. Clark and Dr. Frederick Hooven at Antioch College. He built and perfected the machine at the Nashville VA hospital during the last three years.

In the use of the machine for surgery, the body temperature is lowered by a refrigerated coil in the pump system and thus a state of hypothermia is produced. When the heart temperature drops to 55 degrees F., it stops beating, permitting easier surgery than is possible with a beating heart.

The only moving parts of the machine are a motor driven pump. Dr. Gollan's motor was salvaged from a cast-off household utensil, but the pump was developed by industry for specialized jobs requiring pulsation. Dr. Gollan estimates the machine may be manufactured for less than $250—cheap enough to permit wide usage when it is ready for human heart surgery.

The entire operation of the machine is accomplished in a completely enclosed form while it keeps the blood in constant circulation through the arteries—just as nature does in the body.

From the beginning of anesthesia to the conclusion of surgery, approximately one hour elapses. During most of that period, the bloodless heart has stopped beating and the lungs have remained in collapse. This makes heart surgery easier and less risky.

When surgery is completed and the blood rewarmed the heart starts beating again normally and recovery is effective, according to Dr. Gollan.

MORGAN NAMED VOCATIONAL DIRECTOR

Cecil W. Morgan, Ph.D., a consultant in rehabilitation for the Veterans Administration and the U. S. Army, has been named Director of Adult Vocational Services of United Cerebral Palsy, it was announced Oct. 7 by Jack Hausman, of Great Neck, N. Y., President of UCP.

Mr. Morgan comes to United Cerebral Palsy after two years of service as Professor of Physical Education and Director of Courses in Rehabilitation at Springfield College, Springfield, Mass., and as a consultant in Corrective Therapy of the Veterans Administration in Washington, D. C.

In his new capacity, Mr. Morgan will help to work out a national program of improving methods of rehabilitating adults with cerebral palsy and of providing vocational guidance for their benefit. In addition, he will assist United Cerebral Palsy affiliates in expanding and establishing local facilities for the vocational training and placement of the Cerebral Palsied.

Until his release from active duty as Lieutenant Colonel, Medical Service Corps, in 1953, Mr. Morgan was Director of Reconditioning Activities at the U. S. Army's Reconditioning Center in Garmisch, Germany. From 1946 to 1950, he served as Consultant in Physical Reconditioning with the Office of the Surgeon General, U. S. Army in Washington, D. C. During World War II, he was acting Director of Physical Education, University of Pittsburgh, Pittsburgh, Pennsylvania. During 1944, Mr. Morgan was Recreation Coordinator with the Federal Security Administration, the forerunner of the Department of Health, Education and Welfare.

In explaining the need for an Adult-Vocational Services Director, Mr. Hausman said: "It seems particularly fitting that Mr. Morgan will assume his duties during National Employ the Physically Handicapped Week, (October 2-8) which was proclaimed by President Eisenhower. The vocational training and employment possibilities for cerebral palsied adults, which Mr. Morgan will help us to provide, are really the pay-off of all the earlier rehabilitation efforts: physical and speech therapy, special schooling, recreational programs and psychological counseling. Much has been done for palsied children in these fields, but a great deal remains to be done for older age groups. With th appointment of an Adult-Vocational Services Director, I feel that United Cerebral Palsy has taken an important step toward the goal of helping CP adults to gain a greater measure of self-sufficiency. We are extremely happy to have Mr. Morgan bring his rich experience to the problem of adult vocational rehabilitation.

For the last two years, Mr. Morgan has been Chairman of the Program Planning Committee of United Cerebral Palsy of Western-Massachusetts in Springfield. Earlier this year, he assumed the position of Chairman, Program Services Committee of UCP-Massachusetts.

Besides working closely with numerous UCP affiliates throughout the country, the new Director of Adult-Vocational Services will coordinate his activities with the Adult Vocational Advisory Board, a volunteer body of experts that sets broad policies. The Board is headed by Ernest Fleischer, Chairman, Department of English and Communications Skills, Fashion Institute of Technology, State University of New York, New York City.

A native of New Castle, Pennsylvania, Mr. Morgan received a Master of Education and Ph.D. degree in Education and Educational Administration at the University of Pittsburgh. He also studied at New York University, Maryland University and the George Washington University.

Mr. Morgan is Chairman of Committee of Relation with Armed Forces and Member, Committee on Recruitment in the Association for Physical and Mental Rehabilitation.

NEW DEVICE FOR CARDIOLOGISTS

Atomic medicine is providing a faster and more accurate measurement of heart action — important in the diagnosis and treatment of heart diseases and some cases of shock.

Veterans Administration said the radioisotope research unit at the Bronx VA hospital in New York City has developed a new technique for measuring the pumping efficiency and status of heart action speedily and accurately.

The technique is designed to replace the less accurate and slower method of using dye substances for this purpose.

Mounted on a cart, the equipment can be wheeled to tha bedside of patients. It is so fast in its operation that it can record the heart actions of 10 patients per hour without difficulty, VA said.

The device uses an ingenious tie-up of a Geiger counter, a count-rate meter, an amplifier, an oscilloscope, and a recording camera.

A minute amount of radioactive substance is injected into the blood stream of a patient. The blood from an artery then is directed into a specially designed Geiger counter, and the output of a sensitive count-rate meter is amplified so it may be viewed as a moving spot on an oscilloscope screen.

This moving spot is photographed with a recording camera to form a pattern of curves, known as the arterial dilution curves. From this strip of film, a graph of heart action can be plotted quickly to provide an accurate measurement of cardiac output.

Dr. Rosalyn Yalow, senior physicist at the Bronx VA hospital, devised the equipment with the assistance of Daniel Bibona.

Dr. Solomon A. Berson, director of the radioisotope unit at the hospital, is using the instrument for clinical studies.

SPONSOR ART COSTEST FOR THE HANDICAPPED

A national art contest for the handicapped sponsored by The President's Committee on Employment of the Physically Handicapped, The Office of Vocational Rehabilitation, Department of Health, Education and Welfare, The Veterans Administration and The Morris Morgenstern Foundation has been recently announced. The contest is designed to encourage the careers of talented amateur artists who are handicapped and to illustrate dramatically the employment potential of disabled persons.

The contest is open to all handicapped persons who do not earn the major portion of their livelihoods as artists. For the purposes of this competition, the term "hadicapped person" is used to define "one whose ability to function in normal day-to-day activities is substantially impaired by disease, congenital condition or injury." The contest begins Nov. 6, 1955 and ends at midnight, May 1, 1956.

All entries must be original work painted on either canvas or paper using oils, water colors, gouache or tempora and no dimension may exceed fifty inches. Artists are limited to one entry only. Prizes are twenty-two in number and range from the First Prize of $1,000 to twelve awards of $50 Savings Bonds. Further information regarding the contest may be secured by writing to: National Art Contest for the Handicapped, c/o Morris Morgenstern Foundation. 119 West 57th St., New York, N. Y.

NEW VA AREA OFFICE

Veterans Administration announced it will add another area medical office to the six now in operation so as to provide more efficient supervision of medical activities and thereby give more effective service to veterans.

Columbus, Ohio, has been selected as the site for the new area medical office, but the location and the date it will be opened will be announced later, VA said.

Dr. John G. Hood, present manager of the VA hospital in the Bronx, New York City, has been appointed director of the new office. No other appointments have been made.

PRESIDENT'S COMMITTEE CITATION TO HELEN KELLER

The first special citation to be awarded by the President's Committee on Employment of the Physically Handicapped was presented to Helen Keller on Nov. 14 at a luncheon in Washington marking the fortieth anniversary of the American Foundation for Overseas Blind, Inc. The presentation was made by Maj. Gen. Melvin J. Maas, U.S.M.C.R., retired, chairman of the President's committee, and Chester Bowles, former Ambassador to India. The citation read: "For a lifetime of service to humanity and for her example of courage, faith and triumph over physical obstacles. She has magnificently demonstrated the indestructability of the human spirit in her successful efforts to advance the employment and social betterment of millions of handicapped people throughout the world."

IN MEMORIAM

Richard L. Harris, M.D. (1896-1955)

Dr. Richard L. Harris, manager of the Veterans Administration Hospital at Montrose, N. Y., and a member of the Advisory Board of the Association for Physical and Mental Rehabilitation, died on Nov. 22 following an illness of one month. He had managed the hospital since its activation in 1950 and had been an advisor to APMR for the past three years. Funeral services were held in the hospital chapel on Nov. 24 and interment took place in the Arlington National Cemetery in Washington, D. C., on Nov. 27.

Dr. Harris was born in Wrightsville, Ga., and graduated from the University of Georgia Medical School where he later served for ten yeas as Assistant Professor of Neuropsychiatry. He began his career in the Veterans Administration in 1931, serving as chief of the Neurological Service at the Diagnostic Center in Washington, D. C.; manager of the VA Hospital at Sheridan, Wyoming and Chief Medical Officer at the Brentwood division of the Los Angeles VA Hospital. He served as Colonel with the Army Medical Corps during World War II.

Dr. Harris was a Diplomate of the American Board of Psychiatry and Neurology; a member of Alpha Omega Alpha Honor Medical Society and the Association of Military Surgeons; a Fellow of the American Psychiatric Association and the American College of Physicians and Assistant Professor of Clinical Psychiatry at Cornell University. He is survived by his wife Phyllis; a son, Richard L. Harris, Jr. of Los Angeles and a step-daughter, Janice Freese.

THE ASSOCIATION FOR PHYSICAL AND MENTAL REHABILITATION WISHES ITS MEMBERS, ADVERTISERS AND FRIENDS

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and

Happy New Year

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.....

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The first Table of Contents for this Journal appeared in Vol. 4, No. 9. The first Cumulative Subject-Author Index appeared in Vol. 5, No. 6 and subsequent indices may be found in No. 6 of Vols. 6, 7, and 8, respectively. The Index in this issue lists authors and articles which have been cross-referenced by related subjects. Book reviews and abstracts have been added by not cross-referenced. Index for Volume IX was prepared by J. Robert Macaluso, Associate Editor of this journal.

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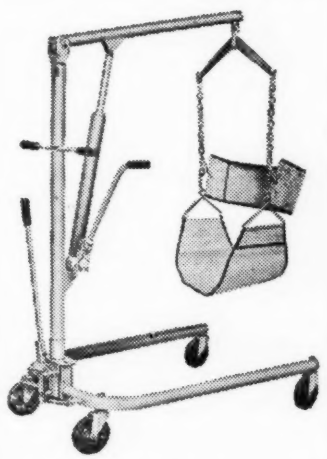

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That, under Article I, Section 3, scientific privileges of the association shall be accorded to **all members alike.**

That, under Article I, Section 7b, any member demonstrating unusual interest or meritorious service can be nominated to be a **life member.**

That, under Article IV, Section 6, any member can address, during session, the Representative Assembly upon majority vote of the Assembly. (Note: I doubt that anyone would be refused).

That, under Article IV, Section 1b, our National Association divides the nation into six areas, a method which secures representation on a Democratic basis. Area I has 7 states; Area II has 10 states; Area III has 7 states; Area IV has 10 states; Area V has 8 states; Area VI has 7 states.

The Representative Assembly is made up of three (3) representatives from each area. **Now hear this,** the Constitution Committee has been receiving information through the grapevine that some areas and/or states feel that they are not getting full representation. Indirect information or rumors **do not** give the Constitution Committee anything basic or legal to work on. In order to bring out any feelings concerning representation, the Constitution Committee has taken our registry and picked out ten names at random. These persons are being asked, through this column, to express their opinions. The names are as follows: Arnold E. Caldwell, Alabama; George O. Belders, Arizona; Harold D. Leach, Arkansas; Dorothy C. Lynch, California; William N. Neiheisel, Colorado; Edward F. Simmons, Conn.; Frank P. Deliquanti, Delaware; Albert P. Tully, Florida; D. L. Garland, Georgia; William A. Hillman Jr., Florida. If the persons named above will assist the C.C. by studying the Constitution in regard to representation, and send the Chairman any suggestions, recommendations, or comments they will be readily accepted and I assure you, studied. The above persons will not be contacted personally—thus, interest, sincerity, and desire to help will be your guide. Any other members wishing to make comments, please do so. Results of this erratic survey will be made known in a later issue of the Journal—will you help? As an active member you are a person with authority even though you may not hold an official office. My interest is with the membership, so help me carry out my interest by loading Box 12, Clinton, Mississippi with mail. You may complete the address by adding Lester P. Burrowes—More facts next issue.

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